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No man who hath tasted learning but will confess the many ways of profiting by those who, not contented with stale receipts, are able to manage and set forth new positions to the world: and, were they but as the dust and cinders of our feet, so long as in that notion they may yet serve to polish and brighten the armoury of truth, even for that respect they were not utterly to be cast away.—MILTON.

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CALCUTTA REVIEW.

No. CXV.

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ERRATA.

At p. 156, line 14 from top, *read* " nature " for " use."

„ p. 161, „ 3 „ „ *omit* the word " let."

„ p. 176, „ 4 „ bottom, *instead of* " between two and three,' *read* " between three and four."

THE

CALCUTTA REVIEW.

No. CXV.

Art. I.—MUHAMMADAN PHILOSOPHY.

1.—*Documenta philosophiæ Arabum.* A. Schmoelders. Bonnœ: 1836.

2.—*Recherches sur les anciennes traductions d' Aristote.* Par A. Jourdain. Paris: 1843.

IT must be owned that it is now somewhat late in the day to offer a review of the books named at the head of this page; but perhaps the comparative rarity of the books themselves, at any rate in this country, and the interest of the information they contain, may be considered to furnish a valid excuse for reverting to them so many years after their publication.

Gibbon, following Pocock and others, has narrated the leading circumstances of that remarkable renaissance of Greek philosophy which took place amongst the Muhammadans in the eighth century of our era—the second of the Flight—and how this resuscitated philosophy, following in the wake of victorious Islam, found a second home in Spain, and thence spread through the schools of Western Europe, giving a new stimulus and bent to the intellectual life of our ancestors; but it has remained for subsequent enquirers to fill up the details of the narrative; to trace the exact dates at which, and the channels whereby the documents of Greek philosophy found their way into Arabic, to specify the particular Greek works which were so translated, to determine the amount of progress made by the Muhammadans in philosophy and estimate its influence on their literature and theology; to fix the exact share which the Muhammadans had in introducing philosophy to Europe;—finally to estimate the amount and character of their influence on European thought.

It has been said that it is the work of one age to put questions, and of another to find the answers to them; and it must be admitted at the outset that the time has not yet come at which anything approaching to exhaustive answers to all these questions can be given. As Dr. Schmölders often warns us, materials for a full account

of Muhammadan philosophy are not yet available; and moreover the knowledge of the materials which exist, and the ability to draw correct inferences from them, are seldom found united. "To follow the mere Arabic scholar," says Professor Maurice, "who has no knowledge of philosophy, is unsafe, for he may overlook shades of meaning and put a popular sense upon technical words which would often lead us into gross misrepresentations. "To follow the modern interpreter who comes armed with all the "philosophical apparatus of the last hundred years is more unsafe "still, for he reads himself into the old times and finds Kant "or Schelling in Alfarabi or Avicenna." Dr. Schmölders however, seems, as far as we can judge, to combine a knowledge of Arabic with a competent insight into the mysteries of philosophy; and his conclusions, of which we proceed to give an account, would therefore appear to be thoroughly trustworthy. The above remarks have more especial reference to the questions regarding the philosophical doctrines of the Muhammadans, and their historical antecedents and consequents in Greece and in Western Europe respectively, to the elucidation of which Dr. Schmölders has more particularly addressed himself. M. Jourdain's labours are chiefly devoted to ascertain the dates at which the Arabic versions of Aristotle's works became known in Western Europe; and he may be said to have fairly exhausted that branch of the discussion.

The knowledge of the Greek language seems never to have been wholly extinct in Asia, from the time of Alexander's conquests and the establishment of the Seleukian and Baktrian empires down to the era of the Abbaside Khalifs. Points of contact between Asia and Europe were constantly recurring; in the wars of the Parthian Arsacidæ with Rome; in those of the Sassanian kings Shapur, Bahram, Kobad, and Khosrú, with the Emperors Julian, Theodosius, Justinian, and Heraclius; in the various settlements of the Nestorian Christians throughout Mesopotamia,* Persia, and Khorassan; in the Episcopal seats at Mosul, Nisibis, and Seleukia; in the resort of Greek Philosophers and Physicians to the courts of Nushirvan and Khosrú Parviz, and to Arabia. The existence of a widespread knowledge of the Greek language in Asia is further proved by the inscriptions on the Baktrian coins, by the parallel Greek and Pehlevi rock inscription at Naksh-i-Rustam, ascribed by De Sacy and Haug to Ardeshir Babegan, the founder of the Sassanian dynasty (226 A.D), and by the prohibition of the use of Greek in public documents by the Khalif Walid. But it was not till the eighth century of our era that Greek philosophy was studied by the Arabs. Jourdain's account of this is to the following effect:—

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* Redekünste Persiens, p. 2.

Down to the period of the fall of the Ommiad Khalifs (about 750 A.D.) the learning of the Arabs was, as we know from Abul Faraj, confined to an acquaintance with the laws of grammar and prosody, and with the motions of the heavenly bodies. But when the descendants of Abbas came to the throne a remarkable change took place, and the unprecedented spectacle was seen of a people who had hitherto lived only to fight and to propagate their faith devoting themselves all at once to the cultivation of the sciences, and literature. The cause of this change is to be sought for in the manner in which the Abbaside dynasty established itself on the throne. During the rule of the Ommiads, the descendants of Abbas had found an asylum in Mesopotamia, Persia, and Khorassan, where they passed their time in religious and literary pursuits. In these countries, they came into contact with the Nestorians whose schools were then in a most flourishing state, being attended by many natives of Persia, a country whose people have always shown a strong taste for the subtleties of metaphysics and for scientific discussions. 'In Baktria,' says Von Hammer,* 'and in Transoxiana the sciences and arts were never 'strangers, and from times most ancient to the latest the lands 'on this and on that side the Oxus were a favourite abode of the 'sciences and of their admirers. The great cities of Bamian, 'Balkh, Merv, and Bokhara were so many *foci* of culture. * * * * 'Herein the spirits of East and West came into contact, and 'hence Greek science became as much at home in Persia as Persian 'luxury at Constantinople.'

'Jourdain continues his account in the following words:—

'The standard of the house of Abbas was first planted in Kho-'rassan; an army mainly composed of Persians, including the 'Barmekides and other noble families of Baktria, advanced 'triumphantly to the Euphrates, and the Ommiads beaten at all 'points at length yielded the throne to the children of Abbas. 'These remembering their long exile in Persia, and the aid 'given by Persians in their struggles for the throne, summoned men 'of that country to share in the dignities of the empire, and ac-'quired imperceptibly their manners and tastes. The Nestorians 'came in for their share of the favour accorded to the Persians. 'The Abbaside Khalifs became as partial to them as they were 'inimical to all other Christian sects, whom they regarded as 'spies and emissaries of the Greek emperors. In fact the Nesto-'rians possessed many useful accomplishments not to be found in 'their co-religionists. They were very skilful physicians, well

* Sir J. Malcolm found a colony of forty Nestorian families who had a pastor and a small church at Sennah in Kurdistan, which was said to have been settled there for thirteen centuries. History of Persia ii. 300.

'versed in mathematics and astronomy and also enjoyed the 'reputation of being learned in astrology, an art for which all the 'earlier Abbaside Khalifs seem to have had a great fancy. Alman-'sur, who had passed half his life in Persia, made Khalid the Bar-'mekide his Vizier, and, as soon as his throne seemed firmly estab-'lished, undertook the task of enriching his language with the 'scientific treasures of the Greeks. His worthy successors, Harun 'ar Rashid, who was educated by Yahya the Barmekide, and Al 'Mamun, who was educated in Khorassan under the care of Jafir, 'worked with the same ardour to enlighten the Arabs, and thus in 'less than a century the greater part of the scientific wealth of 'the Greeks passed into the language of the Koran."

It is a disputed question whether the Greek books were for the most part translated directly into Arabic, or first into Syriac and thence into Arabic. Jourdain is of opinion that some were translated directly from Greek and others through intermediate Syriac versions. Schmölders inclines to the former view, observing that most of the translators employed were Nestorians, who are known to have possessed a knowledge of Greek.

Ibn Khaldun mentions that the first book translated was the elements of Euclid by Hejaj Yusuf in the reign of Al Mansur, the founder of Bagdad, "the city of peace," about 760 A.D. Abul Faraj says that the works of Hippokrates and Galen were translated by John, son of Massavia, under Harun and Mamun. Of Mamun the same author says.—"He completed the work begun by his grand-'father, Mansur, and, resolved to seek science in its own home, he de-'sired the kings of Greece to send him all their philosophical books, 'and when they came, he sought out competent translators and 'had accurate versions of them made." Mamun instituted colleges of translators, John, son of Massavia being placed at the head of the translators from Greek, and Mahom over the Persian translators. Aristotle, the "Master of those who know," occupied a large number of translators whose names are given by D'Herbelot. His writings had long been familiar to the Nestorians, who had availed themselves of arms drawn from his arsenal to combat the decisions of the Councils of Ephesus and Chalcedon. Honain and his son, Isaac, were among the first who translated Aristotle. The former is said to have lived in Greece some years, and there can therefore be no doubt that his versions and probably his son's as well were made directly from the Greek. D'Herbelot, however, mentions a statement that the 'Topics' were first translated into Syriac by Isaac, and thence into Greek by Jahia bin Aidi. Hobaish, a relation of Honain, Alkindi, Costa bin Luca, and Thabit bin Corrah were other noted translators.

We may say, speaking generally, that the period of translation of Greek works into Arabic lasted from towards the close of the

eighth century, to the early part of the tenth century; though, of course, the process did not then come entirely to an end, as Averroes in the twelfth century is said to have made another version of all Aristotle's works. During this period it would appear that nearly all the principal works of the Greek philosophers, mathematicians, astronomers, and medical writers were translated into Arabic.

D'Herbelot gives the names of some fifty works of Aristotle as having been translated. Amongst them we find not only the Poetic, Rhetoric, Ethics, Politics, Metaphysics, *De Animâ*, history of animals, and the various treatises of the Organon, but also treatises on pleasure, justice, friendship, relation, &c., which, though no longer extant, are mentioned by Diogenes Laertius, and others on agriculture, medicine, theology,* &c., which were probably compositions of later Peripatetic and Neoplatonist writers, containing, perhaps, some 'waters drawn from the inexhaustible 'well of Aristotle, but in vessels made by others.'

In medicine the Arabs had the works of Hippokrates on humours, symptoms, epidemics, (*Abidima*) hœmorrhoids, cupping and bleeding, &c., and those of Galen on maladies, fevers and remedies.

In mathematics the Elements (*Astacsat*), Data and Geometry of Euclid, the Spherics of Theodosius and Menelaus, the Problems of Diophantus, the Conic sections of Apollonius, the works of Ptolemy, Aristippus, Autolycus, and Archimedes including one on water clocks.

Of the later Alexandrian philosophers they had the works of Porphyry, including the *Isagoge*, those of Alexander Aphrodisius, Iamblicus, Proclus, Ammonius, Simplicius, and others.

In astronomy works attributed to Euclid, Ptolemy, Theodosius, Theophilus, Hypsicles, and Hermes Trismegistus, whom they confounded with Enoch (Idris).

They had, moreover, works on physiognomy ascribed to Aristotle and Archigenes, some lineaments of which are probably preserved in the curious chapter on physiognomy in the Akhilak-i-Muhsini, the Geography and Syntaxis Magna (*Al Megiste*) of Ptolemy, a work on botany by Dioscorides, one on chemistry attributed to Ammonius,† and the Gospel of Barnabas.

None of the Greek poets, historians, or orators seem to have been translated into Arabic, and the knowledge of Latin literature poss-

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* There is a Latin version of this by Petrus Nicolaus, made from an Arabic translation by one Abenama.

† Chymia, according to the Arabs, was invented by Chiron the Centaur, and deals with the essences and juices of plants. Simia from the Arabic *Sam* (a vein of metal) is the art which deals with preparation of minerals and extraction of metallic bases and was, as the Arabs say, invented by Ammonius.—*D'Herbelot.*

essed by the Muhammadans seems to have been very slight. But Pliny (Balinas) and Cicero (Ifsikar Atlias) are sometime quoted, besides some writers who have not been identified such as Tutianus and Abrusan.

The numerous Greek words imbedded in Arabic indicate the extensive knowledge of Greek authors prevailing in Asia; *e.g.*, *asterlab, chymia, canun, eblis* (diabolos), *zonnar, haiole, sinud*, &c., and the vast number of purely ecclesiastical terms which might be added to this list shows unmistakeably the great influence exercised by the Nestorians in conveying the knowledge of Greek to the Muhammadans.

This brings us to the third subject of enquiry mentioned at the commencement of this article, namely, the progress made by the Muhammadans in philosophy, and its influence on their literature and theology.

To begin with logic. Dr. Schmölders gives a Latin version of a poem on logic by Avicenna, or to give him his correct name Abu Ali Ibn Sina of Balkh, who lived from 944 to 1033 A.D. With this poem may be compared the summary given in the *Book of Religious and Philosophical Sects*, written by Abul Fatheh Muhammad Sharastani of Khorassan, who lived A.D. 1086 to 1155,—* the Shamsiya or 'Ecliptic' composed by a disciple of Nasir-ud-Din Tusi, translated into English by Dr. Sprenger,—and the Kitab Soghra wa Kobra, which may be styled the Persian Aldrich. To all these the general remark applies that they are concise in the extreme, and would be unintelligible to a tyro in logic without copious explanations. The same definitions and the same hackneyed examples recur over and over again. Taking the poem of Avicenna as a sample, we find first an exordium wherein Logic is defined after the Greek commentators as 'an instrument showing the way to attain truth.' Then follow two sections on simple words, and the five heads of predicables, taken entirely from the *Isagoge* of Porphyry, the explanations given being purely realistic. In the Soghra we find an indication that the nominalist view was not unknown, in the assertion of the author that 'there is no doubt that these predicables are realities (*m'ani*) and not words merely.' Then follows a section on the ten Predicaments which is simply a brief summary of the fourth chapter of Aristotle's Categories, illustrated so scantily as to be barely intelligible. It ends with the words, 'These be the ten predicaments (*maculat*), and praise be to God for his bounty." The next section on propositions condenses into 37 verses, the substance of the whole *Peri Hermeneias*, and hence, as Schmölders says, is an explanation rather of the terms used, than of what they mean. The doctrines of the

* There is a German translation by Professor Haarbrücker of Halle.

quantity, quality, and modality of propositions, and likewise those of opposition and conversion are treated in the same summary way, only two of the four kinds of opposition mentioned by Aristotle being given. The author next treats categorical syllogisms according to the Prior Analytics. It is worthy of note that Avicenna gives only three figures, which proves that he followed Aristotle and not Galen, as Averroes and most of the Arabians did. The Kitab Soghra-wa-Kobra gives all four figures, and uses the letters *Alif*, *Be* and *Jim* to denote the three terms, and from the use of these three particular letters, it may probably be inferred that the Arabian logicians, who first used these symbols, copied from some Greek commentators, who used the first three letters of the Greek alphabet for the same purpose. Another curious thing is that the Arabians place the major premiss after the minor; which is, perhaps, more in accordance with the natural order of thought, than the other method. The general rules of the Syllogism as to the distribution of the middle term, &c., are given with "singular brevity." In his section on the hypothetical and disjunctive syllogisms, Avicenna follows Eudemus and Theophrastus. The poem concludes with sections on axioms, demonstration, and definition, taken from the Posterior Analytics. The only invention in logic ascribed to the Arabians is that of the distinction of first and second intentions, which Mansel says is found in Averroes, but does not occur in the treatises under notice. It was one of the scholastic distinctions which especially tickled Rabelais' fancy. He suggested the question, *Utrum chimæra bonbinans in vacuo comedere posset secundas intentiones* and the latest Oxford logical luminaries, Whately and Mansel, are at issue as to what it means.*

In metaphysics Schmölders gives versions of two works by Abu Nasr-al Farabi, of Farab, now Otrar, in Turkistan, who lived A.D. 900—950. The first is a short treatise on the 'matters necessary to be known before studying Aristotle,' which is composed entirely from treatises with the same title by Ammonius, Simplicius, Philoponus and others. It is an introduction to Aristotle treating of the various Greek schools of philosophy, of the names of Aristotle's works and of the end of philosophy which is defined after Plato to be 'The becoming like to God as far as human infirmity will permit.'

The "Sources of questions" is another treatise by Alfarabi on ontology or metaphysics proper. It begins with sections on the principles of knowledge and the laws of thought taken entirely from Aristotle. Then follows a demonstration of the existence of pure being, which according to Schmölders is one of great moment in the

* The Shamsiya is much fuller but still over brief. than the other treatises mentioned,

history of philosophy, since it is no other than the very argument which Albertus Magnus took to himself the credit of inventing. Alfarabi having attained to the conception of pure being, the serene and remote unity, void of thought and will and purged of all connection with matter, comes next to the question how the material world originated, how a Deity so restricted and limited by abstraction and immutability, can be reconciled with the activity and contact with matter necessary to explain creation. This question he answers by one form of the widespread theory of 'hypostases.' The Desatir says, God created primarily the Supreme intelligence, this produced the Second intelligence with the primitive soul and body, the Second intelligence brought forth the Third and the corresponding heavenly sphere with its soul and body, and so on down to the Tenth intelligence, namely, that of human reason. Similarly Philo, mixing probably this ancient Magian doctrine with Christian phraseology, taught that God being incomprehensible and inaccessible, an intermediate existence was necessary between him and the world, and this was the Word ;—first, the Word as pure thought, and then as thought realised, *i.e.*, the material universe. Another form of this doctrine is found in what is called the Alexandrian trinity—unity, intelligence, and last the universal soul which is the cause of all activity and life. To this last Neoplatonist form of the doctrine is obviously affiliated that set forth by Alfarabi. First proceeds from pure being the First intellect, thence the Second intellect and the universal soul so often mentioned by the Sufi poets. From this arise the heavenly spheres, the four elements, the various forms of life, vegetable, animal, rational, and all the qualities of the material universe. This cosmogony, or something very like it, is also found in the notices of the religions of the philosophers and of the Sufis in the Dabistan. The doctrine of the First intelligence was sanctified to Muhammadans by the Koranic text, 'The first being which God created was intelligence;' and they identified the soul of the Second intelligence with their prophet Muhammad. Alfarabi's treatise ends with two chapters on psychology taken from Aristotle's *De Animâ*, with some Neoplatonist and Muhammadan additions of no great moment. Another notice of the soul or vital principle is found in the first part of the Akhlak-i-Nasiri written by the celebrated Nasirudin of Tus in Khorassan, who lived from 1200 to 1273; wherein it is worthy of note that the word "metaphysics" is translated directly from the Greek as *bad at tabia*, an expression which sorely exercises the Calcutta commentator.

We have good samples of the Muhammadan treatises on moral philosophy in the Akhlak-i-Nasiri just mentioned ; and in the Akhlak-i-Juláli of Jani Muhammad Asaad written in the fifteenth century, of which there is an English translation.

Of both these it may be said that they are simply Greek moral philosophy in a Muhammadan dress. Citations from the Ethics and the Politics meet us at every page. As might be expected, the older of the two preserves more of the features of Aristotle; and the later contains a freer admixture of texts from the Koran, verses from the poets, and Sufi doctrines, "the prelibations of those who look behind the veil." The Akhlak-i-Nasiri is a more purely philosophical treatise 'independent of consonance with or discrepance 'from Particular dogmas and opinions.' The Akhlak-i-Julali has more of a didactic, religious and "practical" character. The general scheme of both works is the same. Each contains three parts, the first based on the Ethics, the second on the Economics, and the third on the Politics of Aristotle. The first part of the older treatise is said to have been composed immediately from an Arabic work named Kitab-ut-Tiharat of the tenth century, and the second and third to be taken from Alfarabi and Avicenna's commentaries on Aristotle. In the first part we meet with all the leading ideas of the Ethics, the end in itself, the mean, the doctrine of habits, &c. The Akhlak-i-Nasiri describes the end of moral philosophy to be 'to know the best courses of voluntary actions, and the 'methods of shaping human conduct, in such wise as to conduce 'to the well-ordering of the affairs of this life and of the next, 'and to ensure that attainment of perfection which is man's end.' It is worthy of note how in this passage the purely philosophical view of Aristotle is blended with the religious view of man's 'end.' Aristotle took his idea of the end probably from the unconscious striving after perfection manifested in physical things ;—

'So from the root,
'Springs lighter the green stalk, from thence the leaves
'More airy, last the bright consummate flower
'Spirits odorous breathes.'

As the flower of the field in obedience to the law of its organisation, springs and blooms and thus realises its own peculiar perfection, so, thought Aristotle, must man consciously set before him as an end and object, the attainment of the highest possible perfection of human nature, and strive to realise it. According to this view the 'end' is something attainable in the present life and desirable in and for itself alone. The Akhlak-i-Nasiri adopts this view, but adds to it the religious conception of man's 'end' or destination in the next world. Man is to shape his conduct not only so as to perfect his nature in this life, but also so as to attain well-being in the next. Thus the 'end' is exalted from earth to heaven. It becomes something existing for the mind of God as well as for the mind of man. The conceptions of the 'chief good,' and happiness, give way to

those of duty and obligation; and philosophy becomes the handmaid of religion. Passing to the Akhlak-i-Julali, we find that the religious view entirely predominates in that work. The 'end' of man is defined to be the 'vicegerence of God on earth;' and moral philosophy 'the therapeutics of the soul,' is the science which teaches men how to discharge this 'trust' in a worthy manner.

The doctrine of the "mean" re-appears mixed up with a lot of Platonist associations. In the Philebus Socrates dwells on the 'goddess of the limit' who preserves the balance of health in the human body, harmony in music, temperature in climates, and moderate virtue amidst the wildly contending passions of the human breast. And curiously enough, though the Philebus was never translated into Arabic, this very same association of ideas re-appears in the Akhlak-i-Julali. 'There is one and the same 'principle,' says the author, 'which if prevailing in the attempted 'particles of the elements is equipoise of temperament, if in tones 'is pure and delightful harmony, if apparent in the gestures is 'grace, if observable in language is eloquence and rhetoric, if 'created in the limbs is beauty, if in the mental qualities is equity, 'of this principle the soul is enamoured wherever it harbours.'

The virtues are classed not according to Aristotle's list but under the four cardinal heads. Many of Aristotle's definitions are reproduced, and many purely religious virtues are added, such as piety, faith, &c., especially in the Akhlak-i-Julali. In the description of magnanimity it is said, 'the last foible to evacuate the heads of the faithful is the love of place',—a commonplace of the schools re-produced in Milton's "last infirmity of noble minds." And other passages might be quoted which have passed through the works of schoolmen into Shakspeare and other dramatists.

The first part closes with chapters on the cure of mental diseases, a subject which we know from Cicero and Horace to have exercised the attention of the Peripatetic and Stoic philosophers whose works have not come down to us.

The second and third parts contain like the first many passages taken directly from Aristotle, but the general treatment of the subject is very different from Aristotle's manner. There are curious disquisitions on etiquette, and on courtly behaviour in the presence of kings, an accomplishment much more necessary in despotic kingdoms than in the republics of Greece. There is also a long disquisition on wives, wherein the authors speak with all the authority and varied experience of polygamists, and noteworthy passages on the rate at which the human race increases, the object of punishment, the origin of society, the classes in the State, &c.

Dr. Schmölders in speaking of the progress made by the Muhammadans in philosophy remarks that coming as they did, without any previous knowledge of philosophy, at once to the study of a

perfected system, they could not avoid being copyists and imitators of the Greeks. Moreover, they had not the time necessary for the elaboration of any great original system, as their philosophical empire rose and fell with the same celerity as their political dominion. And they had besides to contend with the difficulties caused by imperfect versions of the Greek authors. He cites Tiedemann as paying a very high compliment to the 'uncommon acuteness' displayed by the Arabs in their philosophical discussions, and gives as his own opinion that they elaborated and illustrated very many of Aristotle's arguments; that they even anticipated Leibnitz in some of his conclusions, that they waged the celebrated controversy of nominalism and realism probably as early as the eleventh century when it was started by Roscelin in Europe; and that they were the first inventors of many of the technical terms afterwards used by the schoolmen, such as *quiditas* (*mahiat*), *abstractus* (*mujarrad*), *in potentia* (*bilkuwat*), and so on.

Some idea of the influence of Greek philosophy on Muhummadan speculation may be gathered from the account of the tenets of the principal sects in the Dabistan. First we have the Ilahiun or Divine philosophers; divided into the Ashrakin, pure Platonists, and Mashayin, Peripatetics or "walkers"—so-called, says the author, from following the stirrup of Arastu, when he went to wait on Sekander. Then there were the Tabiáiun or physiologists, who seem to have been the atheistic materialists or sensationalists, the Condillacs of Muhammadan philosophy. They taught that the world was composed of phenomena—"things the objects of the senses" (*mahsus*), and that there is nothing besides them. On the other hand the Dahriun whilst apparently accepting the sensationalist doctrines of the last, admitted also a future state.

When these questions were being agitated in the Muhammadan literary world, it was inevitable that Muhammadan theology should feel the influence of the discussion. At first we find, as might have been expected, that the divines tried to ignore the whole affair, on the ground that nothing of the kind had been revealed in the Koran. But as time went on, they could not escape the contagion. The new philosophical language and distinctions afforded them such convenient weapons wherewith to combat the objections raised by philosophers, and to crush heresy amongst their own class, that it was not in human nature to resist making use of them. As Tertullian says, 'the heretics provoked them to philosophize.' The first who carried philosophy into divinity were the Mutakallamin or scholastics, and of these it was said by Al Shafei that they deserved to be impaled and carried through all the tribes of Arabia. These sectaries are said to have "mixed the true faith with the belief of the Peripatetics." The science they professed *(al-Kalam)* is defined as a 'doctrine by which one is

rendered capable of confirming the truth of religion by demonstration, and of solving doubts' and in fact corresponds to the 'scholasticism' of mediæval Europe, which has been called the union of a theological matter with a philosophical method. Under their fostering care the religious sects increased and multiplied till they reached, or perhaps even exceeded the number of 73, foretold in the Koran. These debated numerous questions, which are grouped under what are called the "four bases," *viz.*, the attributes of God and His unity consistent therewith, predestination, the promises and threats, and history and reason. 'There is no difficulty in theology, says Sir W. Hamilton, 'which has not previously emerged in philosophy,' and when we find amongst the questions debated by the Muhammadan theologians, such as the following, 'whether the attributes of God are co-eternal with and involved in His essence,' 'whether God knows by His essence or by His knowledge,' 'whether the actions of man are analogous to the products of nature,' and so on, we cannot but attribute their genesis to Greek philosophy. In fact it is impossible that such questions could have suggested themselves to minds vacant of the furniture of Aristotle and his successors.

Platonism, or we should rather say Neo Platonism, has a singular affinity with some of the mystical doctrines of the Sufis; and the Dabistan mentions an impression that "the belief of the pure Sufis is the same as that of the Platonists." This is proved by the occurrence of the doctrine of the First intelligence and Supreme soul in both systems.* But whether the Sufis borrowed it from the Neoplatonists is a disputed question. Tholuck thinks not, and he shews that the name Sufi is not derived from the Greek Sophos as Malcolm and others thought. But undoubtedly the Sufis studied Greek philosophy, and used it in their writings. For instance in a passage of Jelaludin, quoted by Lumsden, we come across the axiom of Heracleitus that 'contraries are congruous,' though by the way it is wrongly given, and this is made the basis of a long mystical argument.

Down to the last there seems to have been an opposition between the philosophers and the divines, pure and simple. Thus even as late as 1100 the latter had influence enough to procure the condemnation and burning at Cordova of the Ihya Al Alum, the great work of Gazali of Tus who died in 1110; though from the account in Sale, it would seem that Gazali was very moderate in his opinions, and it was said of his great work that were Islam destroyed with all its books, it might be recovered in all its integrity from the Ihya Al Alum alone.†

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* Grote traces a similarity beween the ideas in the Phædrus and in Hafiz.

† Dr. Schmölders has written a book on Gazali, which unfortunately is not at hand.

This brings us to the next question discussed in the works under review, namely, what share had the Muhammadans in introducing the knowledge of Aristotle to Western Europe? Jourdain sketches the history of the transmission of Arabic learning to Spain in the following terms:—

"The rapid progress of the Abbaside armies compelled the "Ommiads to seek an asylum in the remotest parts of the empire. "One of them escaping by a miracle the general massacre of his "family reached, after the most marvellous adventures, the shores "of Spain, and was there saluted Khalif. Then commenced for "the Ommiads and for the Saracens an epoch equally bril- "liant in the annals of political and literary history. The "proud sons of Ommiah who had been conquerors, savages, "or fools on the throne of Damascus, appeared to renounce "their barbarous manners when transplanted to Spain. This "change, the result of the influence exercised by the conquered "people on their conquerors, turned to the profit of the sciences. "Academies were seen to establish themselves at Cordova, Seville, "Granada, Toledo, Xativa, Valencia, in short in nearly all the "chief towns under Saracen dominion. The Spanish Khalifs "invited to these academies the most celebrated Arabian "scholars, endowed them with ample revenues, and presented them "with well-filled libraries. But the East was ever regarded as "the well-spring of learning. In the same way as a Christian "scholar, in order to gain a name, had to visit all the universities "of France, England, and Italy, so the Mussulman scholar of Spain "in order to make any pretensions to the title of a profound "philosopher had to leave his native soil, to traverse Africa, to "frequent the schools of Egypt, to reap the harvest of learning in "Syria, at Bagdad, in Persia, and Khorassan. Hence, Spain could "not remain in ignorance of the progress made in the sciences in "the East. The study of philosophy necessarily advanced with "the same rapidity in Spain as in the Eastern provinces; and "the works published there quickly passed into the schools of "Spain. The most famous Spanish Muhammadan philosophers "followed close upon Gazali, Alfarabi and Avicenna. Averroes "(Ibn Roshd) who lived after Ali-bin-Ragel, Geber, Azarchel, "Aven Pace, and Jafir Ibn Tufail, died according to the common "opinion in 1198 A.D."

The old opinion was that the works of Aristotle were unknown to the scholars of Western Europe, till 'they had learned their ignorance from the industry of the Arabs.' But this opinion was afterwards strongly combated; and Jourdain, who has gone most carefully into the evidence for and against it, has come to the conclusion that it is not true without considerable modifications. He has examined the works of the schoolmen and noted the exact

dates at which citations from each one of Aristotle's works first make their appearance. Further he has examined the oldest Latin versions of Aristotle's works and decided from internal evidence whether they were made from Arabic versions or directly from the Greek. Aristotle's works on logic were, he says, known from the Latin versions made by Boëthius in the fifth century. Up to the twelfth century the Spanish Musalmáns were known to European scholars only for their proficiency in mathematics, astronomy and medicine ; which subjects were studied in Spain as in the East, before philosophy. The Christians commenced the study of Aristotle's Metaphysics, Physics, and the Arabian commentaries on logic, about the middle of the twelfth century; in the course of which Avicenna, Alfarabi, and Gazali were first translated into Latin by Gondisalive, Avendreath a Jew, Gerard of Cremona and others. Citations from these works first begin to appear in the works of the schoolmen about 1200 A.D.; and by 1272 the entire works of Aristotle had been translated. The taking of Constantinople in 1203, and the Crusades, introduced many Greek works into Western Europe about the same period; and there is no doubt that some of them at least were translated directly from the Greek into Latin. Amongst those first translated from the Arabic were the Physics, Metaphysics, History of animals, plants, and meteors; while the De Anima, the Parva Naturalia, Ethics, Politics, and Rhetoric were first translated from the Greek, though they were subsequently translated over again from Arabic,—and all these works were studied with the aid of the Arabian commentaries. Cordova alone, it was said, could solve the enigmas of Aristotle ;—

Solus Aristotelis nodosa volumina novit
Corduba, et obscuris exprimit illa nodis.

The Latin version of Avicenna's works was one of the earliest books printed ; and several editions appeared in the course of the sixteenth century. The works of Averroes appear to have been first translated into Latin by our countryman, Michael Scott, in the thirteenth century ; of whom it was said by Roger Bacon, 'Through him the philosophy of Aristotle was glorified in the Western sphere.

Finally, we come to the question what was the influence of the Arabian philosophers on European thought. Professor Maurice seems to speak of it as if it had been a sort of religious propagandism, an effort of Islam against Christendom. But as we have seen, the Arabian philosophers as a class were strongly opposed to and opposed by the Muhammadan divines ; and there is no more ground for ranking Avicenna or Averroes as missionaries of Islam, than for claiming the late Mr. Mill as a "Christian advocate." Of course the earlier students of the Arabian works were accused of dabbling in Pagan lore, and corrupting Christianity with the poison

of the Koran. Pope Gerbert* in the tenth century, Adelard of Bath, Plato of Tivoli, Alfred de Morlay, Michael Scott and others all came in for their share of this opprobrium. But in point of fact the influence exercised by the Arabian writings, was not the influence of the Koran but that of Aristotle,—"the parent of heresies." The process of philosophizing theology, of treating theological subjects in a philosophical manner, had of course commenced long before the Arab conquest of Spain; but the increased knowledge of Greek philosophy introduced by the Arabs no doubt lent a great impetus to this process, and this impetus is the sum total of the Arabian influence on Christian theology. That the Arabians introduced no specially Muhammadan religious doctrines is a proposition which admits of proof very nearly amounting to demonstration. In the thirteenth century the Archbishops of Paris, the chief seat of scholasticism, put forth two celebrated condemnations of the newly introduced Græco-Arabian philosophy; and in neither of those is mention made of any Muhammadan tenets. The propositions condemned related to the Divine essence, the nature of angels, the universal intellect, planetary influences, the eternity of the world, the nature of the soul, the sufficiency of morality *per se* to secure salvation, and so on,—propositions which, we venture to think, would have been equally condemned by Abu Hanifa or Al Shafei. Again, in the well-known lines of Dante it is with the Greeks and not with Muhammad that the Arabian philosophers are ranked;—

"Orpheus I marked * * * *
"Galenus, Avicen and him who made,
"That commentary vast, Averroes.'

The influence of Averroes has been discussed by M. Renan. He points out that though the doctrines of Averroes were stoutly combated by Albertus Magnus and Thomas Aquinas, it was no specially Muhammadan tenet which roused their ire, but the Platonic or Alexandrian doctrine of the *Anima Mundi*; 'the one common intelligence, immaterial and immortal, which still preserves its numerical unity though disseminated amongst the many millions of mankind.' The schoolmen attacked this pantheistic doctrine because it ignored personal identity and the immortality of the soul. We of course admit with Hallam that 'this system of Averroes bore an aspect very unfavourable to natural religion,'* but we maintain this was owing to its philosophical ingredients, and not at all to any doctrines derived from the Koran. Indeed the celebrated Sufi Hosain-al-Halaj was crucified in the year

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* He is said to have been the first to have studied algebra in the Spanish schools, and to have invented a clock.

As stated before, the Arabian mathematics were studied long before Arabian philosophy.

261 of the Flight for maintaining a pantheistic doctrine somewhat similar to this of Averroes.* In the thirteenth century the Averroists were allied with the sceptics, but the name of Averroes was still mentioned with respect even by those who disagreed with his doctrines. Thus, Cary says Averroes is alluded to in the following passage of the Purgatorio :—

'How babe of animal becomes remains
'For thy considering. At this point more wise
'Than thou have erred making the soul disjoined
'From passive intellect.

Lord Stanhope, from whom this reference is taken, adds that Averroes was not treated quite so honourably by the painters. In a picture by Andrew Orcagna at Pisa, painted in 1335, there is a special *bolge* reserved for the leaders of mischief, wherein Averroes figures side by side with Antichrist and Muhammad. Subsequently, however, his reputation seems to have been re-habilitated ; and his followers for a long period held supremacy in the Catholic university of Padua. But from 1497, when lectures on Aristotle in the original Greek first began to be given at Padua, his influence declined ; and the last we hear of him is that his tenets were condemned by the Lateran Council in 1512.

It does not fall within the scope of this article to give any account of the achievements of the Muhammadans in the medical and mathematical sciences. But a few words on these subjects may, perhaps, not be out of place.

Lord Stanhope has given an interesting account of the influence of the Arabs on European medicine. The celebrated school of medicine at Salerno is described by Gibbon as 'the legitimate offspring of the Saracens.' In 1100 the physicians of Salerno dedicated a book of medical maxims in Leonine verse to the King of England, which continued to enjoy great celebrity for many centuries. It was reprinted at Rotterdam in 1649, and it is stated in the preface that the Dutch physicians of that time had the verses of the Salerno school constantly in their mouths. The celebrated 'Canon' of Avicenna reigned supreme in all the European schools of medicine for several centuries, and was the text book in the Universities of Louvain and Montpellier in the reign of Louis XIV. A great medical authority of George I's time speaks of it thus ; "Avicenna is fond of multiplying the signs 'of distempers without any reason. He often sets down some for 'essential symptoms which arise merely by accident and have no 'immediate connection with the primary disease.' Many of his remedies are in the highest degree fanciful. He recommends coral for the gums on account of some occult properties. '*Sum-*

* Tholuck. Sufismus. 61.

mus est corallus in confortatione gingivæ.' He shares in the common belief of his age as to planetary influences, and recommends the anointing of the weapon which inflicted the wound in the hope of healing the wound itself.

In astronomy the Arabs followed Ptolemy, who, as is well-known, explained the movements of the stars by the supposition of crystalline spheres without stint of numbers ;—

'Cycle and epicycle, orb on orb.'

On this point, says Lord Stanhope, Averroes greatly to his honour forsook his Grecian guide. He argues against Ptolemy's whole system of epicycles and eccentrics which he declares to be impossible. 'Nature,' he says, 'does nothing in vain, and it is unworthy 'a philosopher to suppose that she employs two instruments when a 'single one will effect the object in view. It is therefore needful 'that there should be a renewed investigation of that genuine 'astronomy which rests on natural foundation. In my youth I 'hoped that such an investigation might be made by myself. Now 'in my old age I despair of it, but still my observations may stir 'up some other man to pursue these inquiries in my place.'

Astronomy as taught by the Arabs included astrology, according to the popular opinion, for which undoubtedly there was some foundation. Probably all the leading Arabian philosophers shared the common belief of their age as to the influence of the planets on human destinies, and the course of mundane events; and, like the Christians who studied them, were suspected of dabbling in the 'black art.' As we have before mentioned, Pope Gerbert was accused of this, as also was Michael Scott. The latter is said to have been

'A wizard of such dreaded fame,
That when in Salamanca's cave,
Him listed his magic wand to wave,
The bells would ring in Notre Dame.'

No doubt there was a class of low impostors amongst the Arabs who assumed the garb of men of science, to cheat the ignorant and perpetrate any kind of rascality that might be desired. Sigonio mentions a Spanish Arab who came to Italy with a band of "ilm wallas," as they would say in Bombay, to poison the Emperor Frederick II. Another chronicler of the thirteenth century says that Eccelin da Romano, the tyrant of Padua and Verona, always carried about with him an Arab astrologer 'from Bagdad, *aspectu et actu alter Balaam.*'

As to the mathematical sciences, M. Wœpke has shown that our figures were known to Boëthius in the fifth century, having probably been introduced from India through Egypt; and that the figures used by the Arabs when they conquered Spain were of a somewhat different form. He thinks, therefore, that they adopted

the figures they found in use in Spain, instead of having been the first to introduce them. Similarly, Dr. Hutton in one of his mathematical tracts comes to the conclusion that the discoveries of the Arabs in algebra have been rather overrated, having been mostly anticipated by the problems of Diophantus. They carried algebra as far as quadratic equations, but seem to have had no conception of the utilities of the art. In the algebra of Muhammad-bin-Musa, translated in the Oriental Translation Fund series, the only use made of equations is to solve questions of division of property amongst heirs—questions which look very intricate in the involved statements of the Sirajya and the English reproductions of Macnaghten and Baillie, but which, as Mr. Ramsay has shown, are easily soluble by the rules of vulgar fractions and proportional parts.

E. H. WHINFIELD.

ART. II.—SKETCH OF THE SPREAD OF SERICICULTURE.

1. *Histoire de la Soie.* Par Ernest Pariset, fabricant de soieries. Paris : 1865.
2. *Yô-san-sin-sets. Traité de l'éducation des vers à soie au Japon, par Sira-kawa de Sendaï (Osyou)*; Traduit pour la première fois par Léon de Rosny, Professeur à l'école impériale des langues orientales. Paris : 1868.
3. *Silk in India. Some account of silk in Inda, especially of the various attempts to encourage and extend sericulture in that country.* Compiled by J. Geoghegan, Under Secretary to the Government of India, Department of Agriculture, Revenue and Commerce.

THE last of the three works at the head of this article contains a sketch confessedly imperfect of the spread of sericiculture generally. We propose to supplement and expand that sketch from materials which do not seem to have been available to the compiler, using his narrative where it sufficiently sets forth the facts without more than this general acknowledgment.

There can be no doubt that the north-east region of China is the cradle of the silkworm and that, in fact, the stock now existing in any country of the world derives its origin either directly or indirectly from that source. A somewhat paradoxical attempt has been made to establish a second or western origin for silk and to assign to the appearance of silk among western nations a date so early as to preclude the supposition that it came from China. M. Pariset has, however, satisfactorily shown that this is a chimera. Admitting that there is no trace of the material in any form, much less of the worm itself, passing out of China westward before the accession of the Thsing dynasty, 249 B.C., he proceeds to enquire whether there is anything to prove the occurrence of silk elsewhere to the westward, before that date. The result is a distinct negative. Silk is not found in any Egyptian mummy cloths, the translations of the Bible which employ the word will not, in the passages where it is used, stand the test of comparison with the original, and the ἐσθὴς μηδικὴ of Herodotus and Xenophon was a dress of peculiar shape and not of a special material, as M. Pariset very clearly shows from a collation of the various passages in which the phrase occurs. Indeed, the notion that the "Median costume" meant a silken garment seems to have first got about owing to a passage in Procopius, sixth century after Christ. A stray passage such as that in Tertullian, where, in his inflated way,

he writes of the Grecian conqueror clothed in silk, "*ut mollius ventilante serico*," and thus reflects back to an earlier date the effeminacies prevalent in his own time, can hardly be looked upon as historical proof that the material was known to the Greeks or Persians of the time of Alexander. M. Pariset, however, while clearly refuting the theory of this early western origin, himself assumes a second species of bombyx indigenous to India or Persia, and maintains that though the Chinese worm was imported into these countries, it found a congener there already existing in a wild state, and that when the method of reeling was learnt from its application to the Chinese cocoons, it was only extended to the indigenous species, which thus constitutes a second origin of stock. This hypothesis is unsupported by any evidence and is framed to meet the apparent difficulty of the yellow colour of the *Persian* cocoon, and we may say the Western and Indian cocoons generally, as contrasted with the white cocoon of China. But there are authentic instances of a change of colour superinduced by or at least following a change of *habitat*. For instance the small China cocoon introduced into India by Mr. Frushard towards the end of the last century in a few generations lost the greenish tinge which characterised it, and became in point of colour hardly distinguishable from the species or variety which it was intended to supersede. And Captain Hutton maintains, though perhaps on insufficient evidence, that the Chinese cocoons were originally yellow. It cannot, however, be denied that the idea of obtaining a textile fibre from the cocoons of the bombycidæ was known to the Greeks of the age of Alexander, for Pamphila, daughter of Latous of Cos ("*mulier * * * non fraudanda gloria excogitatæ rationis ut denudet fœminas vestis*") is expressly mentioned by Aristotle (whom Pliny follows) as the discoverer of the way to weave the fine "bombycia" which afterwards afforded so ample a field to the satirists of the luxury of the post-Augustan period. But it is clear enough from Aristotle's and Pliny's description that neither the insect of Cos nor that of Assyria (of which Pliny speaks) was the mulberry-feeding silkworm or bombyx worm. In fact Mr. Pariset's assumption of a second origin is at once unproved and uncalled for.

China, then, must be the sole starting point in any history of sericiculture. The Chinese historians carry back the cultivation of the mulberry and the breeding of silkworms to the period of myths. If they are to be believed, the art of silk reeling was known in China in the time of Fouh-hi, a century before the date usually assigned to the biblical deluge, and the Empress Si-ling-chi, wife of the celebrated Hoang-ti (some 2,600 years before the Christian era) did not disdain to share in the labours attending the care of the insect, as well as in those of the loom, the invention of which

seems to be attributed to her and to have raised her to the position of a tutelary genius, with special altars of her own. According to M. Pariset, however, it is the invention of the art of *reeling* that is attributed to this empress, or to her daughter, and the previous mention of silk as used for the strings of a stringed instrument named "kin" must be referred to silk *carded* from the cocoon, as the Assamese now card the eria, not to silk legitimately wound off in one continuous filament. But whatever the precise date of the discovery, there can be no question of the very high antiquity of the knowledge of the worm and its product in China. A series of imperial edicts and a voluminous literature of practical treatises testify to the importance of the industry and to the care that was taken to foster an art which was considered, according to M. de Rosny, 'best fitted to promote the morality of the people and extinguished pauperism in the empire.' The original cradle of sericiculture in China, if we are to depend on the 'very respectable authority' of the Sacred Book of the annals, included the country of 'Yeu, lying south-west of the present province of Shantoung; the country of Tsing, answering to the north-west region of the same province; the country of Siu, covering the south of Shantoung and the northern province of Kiang-Sou; and, lastly, the country of King, which now constitutes the province of Hou Kouang.' M. Pariset endeavours to trace the gradual spread of silk cultivation geographically within the limits of China and the extension of the use of silk from one class of the people to another. But his materials are somewhat scanty and need to be largely supplemented by conjecture. It is, however, an ascertained fact that the sign* for silk does not enter into the names of *garments* before the time of the Tcheou dynasty (twelfth century B.C.) and it is supposed that till then its use was confined to the manufacture

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* M. Léon de Rosny gives as "*le signe le plus élémentaire de l'écriture idéographique de la Chine antique pour désigner 'la soie,'*" a character which he renders alphabetically "*mih.*" But, according to the old dictionary Choueh-wên, this meant *silk threads.* As given by de Rosny the sign looks like a rude representation of the worm. But it might readily pass into the form which Klaproth gives among the *caractères primitifs des chinois* as belonging to the sound "yng" and meaning *flocons de soie qui pendent du bonnet.* They look a rough form of the hank of silk. The more modern form of this "primitive character" "mih," twice repeated, is used in the older literature to designate "silk" and this doubled sign is said at the present day to bear the sound "sse," but not to carry the meaning of silk, a meaning which is now conveyed by the sounds rendered by de Rosny "tch'œôu-toú-an," in the symbol of each member of which may be observed the character "mih" entering as a component or key. Some light is thrown on the original pronunciation of the doubled symbol "mih" by the fact that in Corean, which enjoys an alphabet, the word for silk is unmistakeably "sir." The comparison of Greek σῆρ, σηρικόν, Latin *Seres*, and so on, is here obvious.

of flags and the umbrellas designating the various grades of public functionaries. Thus the supply must till the 12th century before Christ have been but limited, and no very large area need have been occupied by mulberry to produce it. Again, the occupation of the country now known as China by the original settlers upon the Yellow River was a very gradual matter, and it seems probable that the extension of sericiculture went hand in hand with the extension of the dominion of the conquering people. Thus de Guignes seems to think that even till the time of the Han dynasty the Chinese empire did not extend south of the Yang-tse-Kiang. Speaking of the doubtfulness of any communication between China and the West before the time of that dynasty, especially by way of the sea, he writes: '*les peuples qui habitent dans les provinces méridionales de cet empire étaient encore, sous les Tcheou, des barbares qui étaient presque nus et se peignaient le corps comme les sauvages. Les chinois policés et qui cultivaient les sciences et les arts demeuraient au nord du Kiang.* * * * *Les chinois n'étaient pas moins resserrés du côté de l'occident. Les provinces de Yunnan et de Sze-Chuen n'ont été policées que fort tard: les habitants étaient des espéces de sauvages; et quand ils eurent été soumis à l'empire, ils conservèrent longtemps leur barbarie.*' M. Pariset concludes that till the accession of the Thsing dynasty, about 250 B.C., the area of silk production had but little extended and was still confined to, speaking roughly, the lower valley of the Hoang-ho. At any rate, from that date, the culture must have largely spread. It is a wide leap to Marco Polo. But his travels are more authentic and distinct upon the point of actual production than any inferences that may be drawn from the passages quoted by M. Pariset, however clearly they may indicate an increased consumption of silk in the manufactured form. We find, then, that in Marco Polo's time the mulberry and the silkworm had covered nearly the same area in China as they occupy at the present day. He mentions silk as produced in abundance all along the route of his south-westerly excursion from Juju (111° E. long., 39° N. lat.) to Kenjan-fu (99° E. long., 34° N. lat.). south-west of the bend of the Hoang-ho. There is then a gap in the mention of silk in his itinerary. But it re-appears in Cui-ju (Kweichau, 104° to 106° E. long., 26° to 28° N. lat.), a province south-east of Sse-chuen and north-west of Yun-nan. And if we follow Polo's southerly route we find silk produced in all the provinces he traversed from Juju to Fuju (Foochow, 119° E. long., 26° N. lat). The industry now extends to the whole of China except the extreme northern provinces. Not even an approximate estimate can be made of the amount of silk produced, but, besides exporting some ten million pounds annually by sea, the yield is sufficient to clothe in silk all but the lowest classes of a population alleged to number 400

millions of souls. At the time of Sladen's expedition, the silk trade of the west of China had suffered much from the Panthay revolt in Yun-nan and Sse-chuen.

The region indicated above as the cradle of the silkworm in China lies over against the peninsula of Corea. The jealousy of the Chinese appears, for some centuries, to have prevented the secret from spreading even thither. But according to a Chinese authority* cited by M. de Rosny, the art of silk-reeling was introduced into that peninsula in the twelfth century before Christ and spread rapidly throughout the whole region. This account is confirmed by the narrative of an embassy from China to the Corea in the years 1119-1120 B.C., which describes the nobles and the chief officers of the court, with their wives, as dressed in the same kind of silk fabrics as are still manufactured in this most impenetrable nook of the world. The Coreans seem ever to have kept themselves as much as possible aloof from the rest of mankind, and probably but little Corean silk at any time found its way into the markets of the outer world. But in the *Calendar of State Papers* published by the Record Office will be found a notice of a letter from Firando from one Richard Cocks to the E. I. Company, dated November 1614, in which, with a view to trade, he writes of Corea as a place producing "damasks, satins, taffeties and other silk stuffs." An article in the *Edinburgh Review* (October 1872) states that a small quantity of silk is still raised in the Corea and manufactured into the fabrics worn by the aristocracy and official classes.

The date of the introduction of the silkworm into Japan is somewhat obscure. But, commencing with the fifth century of the Christian era, the industry has rapidly spread. In fact the people addicted themselves to the pursuit with so much ardour that, in fear lest other branches of agriculture should be altogether abandoned, the Japanese Government has, at times, forbidden the extension of mulberry cultivation, or attempted by sumptuary laws to restrict the use of silk garments to certain classes. Sericiculture has, at one time or another, spread to almost all the islands of the Japanese Archipelago. But the northern isles are somewhat too cold and the southern too hot, to be a favourable field for the enterprise. According to a report by Mr. Adams, Secretary of Legation, "the silk districts are confined to the principal island, and may be divided into three groups: the northern designated under the general name of Oshiu; the south-western including those of Echizen, Sodai, Mashita, &c; and the central, which produces the Mayebashi, Shinshiu, and other varieties of hank silks, as well as the silks of Koshiu and

* *La célèbre encyclopédie de Má Toúan-lun, intitulée "Examen général des écrits et des sages."*

Hachoji." The opening of the ports and the demand for fresh stock caused by the epizoic which has ravaged the silk districts of France and Italy, have considerably increased the growth of mulberry in Japan. There are no statistics of the internal consumption of silk in Japan, but the Consul at Kanagawa estimated the total yield at 135,000 bales. In 1862-63 the exports rose to about two and half millions of pounds, but this was an exceptional year. Still the average of the four following years was about 15,000 bales or more than 1,500,000 pounds, while in the two years, 1868-69, no less than £1,400,000, worth of eggs is said to have left Japan.

It was not, we may presume, till the industry had spread southward in China far beyond its original limits, that, still following the same direction, it reached the Annamite kingdoms. M. de Rosny dates its introduction there from the third century before our era, but cites no authority for the assertion. In Tonquin and Cochin China the manufacture of silk has taken considerable hold; and in the seventeenth century there seems to have been a large export of silk, both raw and in fabrics, from these countries. It is worth remarking that much of the raw silk then exported was carried by the E. I. Company to Japan, where, therefore, the demand of the manufacturers would at that time appear to have exceeded the internal supply. At the present day the silk of Tonquin and Cochin China is mostly raised in small quantities by the peasants in their own homesteads and used for home consumption; it is said to be markedly inferior to that of China. The Siamese appear to have learnt the art in the beginning of the seventh century A.D.;* but the industry made no great progress till the eighteenth century when the opening of communication with China gave a certain stimulus to it, probably by the emigration of Chinese to Siam, where other branches of industry, *e.g.*, tin-mining, owe such development as they have attained, mainly to immigrant Chinese enterprise. At the present day, according to Crawfurd, the industry has again fallen into disfavour and the few places where it still maintains an existence only produce a small quantity of a coarse fabric inferior to the manufactures of Java and Celebes. But some Siamese silk now finds its way to the looms of Surat and Ahmedabad. A Chinese account of Cambojia says that the worm was introduced there from Siam in the thirteenth century of the Christian era. Of the success of silk in Java and Celebes, or in the other islands of the Malay Archipelago, no very distinct record appears attainable. The Government of Netherlands India has, however, made several attempts to naturalise some of the multivoltine species or varieties of the silkworm in Java and at one time indented (on a very small scale) upon India for the skilled labour of silk winders. No very

* Not "B.C." as, seemingly by a clerical error, stated in "Silk in India."

decided results seem to have been obtained. In Labuan recent experiments have been made, also with multivoltine worms, and seemingly with some success. But on the whole the Malay Archipelago cannot yet be regarded as a *proved* silk region.

Into the Indo-Chinese regions the silkworm probably passed from Western China; but at what date there seems to be nothing to determine exactly. Silk is now produced in the modern kingdom of Ava, in British Burmah, and in Manipur. Into the last the industry was undoubtedly introduced by way of Burmah. Even an approximate estimate of the outturn of these countries is impossible, but they throw little silk, if any, into the great marts of Europe, the yield being in the main worked up into garments for native wear.

Everything goes to prove that silk-culture found its way into India by land from the north-east, probably through the Assam valley. The distribution of the worm as we find it at the end of the sixteenth century and the subsequent spread of the sericiculturist area clearly point to this conclusion. The extension is not from the coast inwards as it would have been had the worm been introduced by sea, but from the *débouchement* of the Assam valley downwards, and in fact Midnapur and Hugli, the most seaward of the silk-growing tracts, have been the last occupied. Again, the earlier worms were all multivoltines, and though these might have been transported by sea (and indeed in the eighteenth century China multivoltine breeds were actually so imported), it is far more likely that a worm of this habit should have come down stage by stage overland. Thirdly, we have the express testimony of Mr. Atkinson, Commercial Resident at Jungypore at the end of the last century, to the existence of a well-authenticated tradition that the annual worm was actually introduced from the North-East; from Sylhet, said Mr. Atkinson's informant, but in fact, I should suspect, from Assam, where the annual species or variety seems very well established.

The date of the introduction of the worm is a point much more difficult to decide than the direction which it followed. The question has at the outset been somewhat obscured by the omission to define the term "silk." For the purpose of the present enquiry let "silk" be understood to mean the product of a domesticated mulberry-fed worm, obtained from the cocoon by continuous reeling. It can be conclusively shewn that silk in that sense was not produced in India at the time of the travels of Hwen-Thsang or in the first-half of the seventh century of our era. A word "kauseya" indeed occurs in the laws of Manu, in the Mahâbhârata and in the Râmâyana, and is by some translators rendered "silk." The term is employed with terms admittedly designating stuffs of wool and cotton, and is declared by the commentators to mean "stuff

made from the cocoon of a worm." Now, this "kauseya" is expressly mentioned by Hwen-Thsang, transliterated into kiao-che-ye (as spelt by Julien), and it will be interesting to collect the various passages in which the word occurs. In the description of the distribution of alms at Prayâg by King Sîlâditya, at which Hwen-Thsang himself was present, the pilgrim writes:—"*Il (Sîlâditya) fit construire, en outre, plusieurs centaines de longues maisons pour y déposer des vêtements de kiao-che-ye et de coton,*" &c. (vol. 1., p. 253, Pélerins Bouddhistes). Again (vol. II. p. 68) Hwen-Thsang mentions kiâo-che-ye among the materials which the inhabitants of India used to make their dresses. *Ils portent,* he writes, *diverses sortes de vêtements, savoir,* 1°, *des vêtements de kiao-che-ye (kauseya), de coton, de toile, &c.;* 2°, *des vêtements de tsou-mo (kshauma) qui est une sorte de chanvre;* 3°, *des vêtements de kien-po-lo (kambala), tissus avec de la fine laine de mouton;* 4°, *des vêtements de ho-la-li.* Ces derniers sont fabriqués avec les poils d'un animal sauvage, qui sont assez fins et souples pour être filés.*" At page 189 of the same volume, speaking of the people of T'se-kia (in the Northern Panjáb) Hwen-Thsang says:—"*Ils s'habillent avec des étoffes d'une blancheur éclatante qu'on appelle kiao-che-ye, et portent des vêtements rouges comme le soleil levant.*"

From these passages it is evident that "kiao-che-ye" cannot have been "silk" as we have for the present purpose defined that term, or it would have been at once recognized by the Chinese pilgrim as such. In fact he does in several passages speak of silk in this sense, but nowhere as *produced* in India. For instance, in writing of the province of Che-to-tou-lo (which Julien renders Satadru and which General Cunningham identifies with Sarhind) he says:—"*les habitants portent des vêtements de soie fine dont le haut est orné de riches broderies*" (vol. I., page 364), and he expressly mentions the silk manufactures of Hotan (Khotan) and of Po-la-sse (Persia). On the other hand, though his travels extended to Kâmarûpa in the east and must have carried him through the country first occupied by the mulberry in Bengal, he makes no mention anywhere of such an industry as sericiculture. Briefly, then, it may be inferred from the "*Pélerins Bouddhistes,*" (1), that the "kauseya" of the old Sanskrit texts was not silk as we have defined it, and (2), that at the time of Hwen-Thsang's travels the mulberry silkworm had not been established in India, such silk fabrics as were used being probably imported in the manufactured state from the north-west frontier or, if manufactured in India, manufactured from imported silk. The passages cited do not throw much light on the question

* General Cunningham, it may be this with the fine wool of the said *en passant,* is disposed to identify "gural."

what "kauseya" or "kiaoche-ye" actually was. M. Pariset contends that it was a stuff made from wild cocoons, *carded*. It may have been so, but Hwen-Thsang's description of the colour as being "une blancheur éclatante" is hardly consistent with this theory.

The following notes, kindly communicated by Mr. Blochmann, go to fix the other limit of the period within which the silkworm must have found its way to India. "The Aín-i-Akbarí gives Todar Mall's rent-roll of Bengal for 1582, in which it is said that raw silk (abresham) is produced in Sirkár Ghorághát, *i.e.*, Rájsháhí, Bogra, Dinájpúr. Besides the Aín, we have a short description of Bengal in the *Haft Iqlím*, a little-known Persian work, written in 1591 by Ahmad-i-Rází, a relation of Núr Jahán's father. He was in India a few years before 1591 and may have been in Bengal. He says (I translate from my MS.), 'The chief products of Bengal are rice, sugarcane, raw silk (abresham), areca nuts and pepper; of fruits mangoes, plantains, oranges, &c.' The author then speaks of Bengal muslins and mentions some of the Sirkárs; *viz*:— Sirkár Audambar (*i.e.*, northern Birbhúm and Murshidabad district). 'In several parganahs of this district raw silk is produced,' and 9, Sirkár Ghorá Ghát:—'This Sirkár borders on Koch Bihár (which extended in 1590 more southwards than now), and produces rice, raw silk and areca nuts.' In speaking of Koch Bihár he says:—'Koch Bihár borders on Ghorá Ghát in the south and on Tibbet in the north. People from Tibbet pass to and fro. The products of Koch Bihár are raw silk, pepper, and a kind of ponies called tánghan."

Thus at the end of the sixteenth century we find the silk-growing industry established in a tract of country which may be described as including Rájsháhí, Murshidabad, Rangpur, Dinájpur, Bogra, Koch Bihár and part of Bírbhúm. To bridge the interval between this and the anterior limit given by the negative evidence of Hwen-Thsang's travels, an interval of more than 900 years, we have hardly any materials. The early Muhammadan histories are but catalogues of dynastic changes, and for Bengal there are not even such histories. The only evidence we have been able to obtain is contained in the following brief note for which we again are indebted to Mr. Blochmann:—"The Tabaqát-i-Naçirí (written in A.D. 1260 and printed by the Asiatic Society) mentions that when Bakhtyár Khiljí, in A.D. 1203, conquered Koch Bihár and entered the mountains north of it, he fought with people whose armour, shields, and helmets were made of bamboo and 'were all filled with raw silk (resham-i-khám).' *Tabaqát*, p 153.' It would not be prudent to build too much on this somewhat vague and not very intelligible statement; but so far as it goes, it points to Assam as the immediate source of the Bengal silkworm.

and to the absence of indigenous silk in Bengal Proper at the beginning of the thirteenth century.

It seems probable that the Bengal silk at first was either worked up into plain fabrics for local consumption or was exported westward to the looms of Western and Upper India. Thus in the list of stuffs and garments in the Aín-i-Akbari, while the silk fabrics of Láhor, Fathipur, Ahmadabad and Agra are described in detail, there is no mention whatever of any silk manufactures* from Bengal. As at the present day, the Bengal raw silk had to compete with the silk of Persia and Bokhara; and in 1614 one W. Edwardes writes to the E. I. Company from Ahmadabad of Persian raw silk fetching there as much as in England. But in the earlier years of the seventeenth century the supply of Bengal silk does not seem to have been large, nor did the silk produced find favour in the European market. Thus on Christmas-day, 1619, Wm. Biddulphe and John Willoughby write from "Senend (? Sirhind) in the King's Lascar, 200 coss from Agra and 100 coss short of Lahore" that no quantity of silk was to be had at Agra. Nevertheless, William Methwold writing from *Masulipatam Roads* on 7th October 1619, "hopes to furnish good quantity of Bengala silk," and on the 15th idem, Francis Fetiplace and others writing from *Agra*, "will send Bengala silk next year," while about the same time Robert Hughes and another writing from Patani (? Patna) say "Bengala silk bought and sent to Agra." Shortly afterwards the Company seems to have altogether interdicted the purchase of Bengal silk, at any rate for exportation by way of Surat. But, in truth, the attention of the Company about this time was mainly turned to any silk but Bengal silk. Chinese, Japanese, Siamese, Cochin Chinese and especially Persian silk seem at one time or another to have been in favour, and so early as 1604 the Turkey merchants petitioned the crown complaining of the decay of their trade into the Levant by reason of the E. I. Company's trade "whereby * * * silks * * * which used to be brought through Persia into Turkey are now brought direct from the Indies." But negotiations with the "Sophy" for the monopoly of the export of Persian silk came to nought, and the rivalry of the Dutch much hampered the trade in the Eastern seas, so that by the end of the seventeenth century Bengal silk came to occupy a prominent position among the Company's Indian exports.

It is not the purpose of the present paper to discuss the commercial policy of the E. I. Company. Good or bad, there can be

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* The richer silk fabrics have never been largely manufactured in Bengal Proper. In fact the taste for these fabrics seems to be distinctly due to Mughul, or at any rate Muhammadan influence. Thus the "mushroos" and other gaudy productions of Maldah are probably relics of the splendour of the Musalmán court of Gaur.

no doubt that it tended to force the production of raw silk for export and to depress indigenous manufactures of silk. Thus the cultivation was pushed on into Hugli, Midnapur, Bánkurá and parts of Nuddea and Jessor. But the extension in this direction was afterwards followed by a decay in the north-easterly districts of Dinájpur and Rangpur. The only respect in which any effective improvement had been introduced by the Company was that of reeling and drying, in fact the manipulation of the cocoon when once formed. The attempts of the Company to improve the breed of worms, to introduce new breeds, to establish a better system of rearing, or to acclimatise new varieties or species of the mulberry were not successful. In particular the attempt to establish a new stock from Italian or St. Helena eggs was a complete failure, a fact, it may be noted, which M. Pariset has quite overlooked when he endeavours to trace an intermixture with European breeds in the colour of the Indian cocoons. But, without the agency of the Company, certain eastern breeds established themselves, and the appearance of the annual worm at the beginning of the eighteenth century is a notable fact in the history of Bengal silk. This worm still yields the greater part of the March "bund" or crop. Since the Company's retirement from business in 1834 the Bengal silk exports by sea have been nearly stationary, averaging something less than one and a half million pounds a year. But, while the exports of Bengal silk have stood still, those of China have increased enormously and Japan has come into the market. Relatively, therefore, the position of Bengal in the European silk market is very much lower than it was forty years ago. The internal movement of Bengal silk to the looms of the Panjáb, the Central Provinces, and Bombay still continues, but in diminished quantity, as the manufactures which create the demand are gradually on the wane.

The only Indian province outside Bengal where silk has obtained any real footing, is Mysor. The industry there appears to have been the creation of Haidar Ali or his successor, and for many years throve in its way. But of late a fatal epizoic has nearly destroyed the insect, and all the efforts to establish a healthy strain of worms have proved unavailing. It is not very clear whence the original Mysor stock was obtained, but it seems to be the same worm as the China worm of Bengal; and on the whole was most probably obtained from that province.

The experiments in naturalisation in the north of India, Bombay, Madras, the Panjáb, and elsewhere, narrated at almost tedious length in "Silk in India," were all absolute failures. A somewhat more promising attempt is now being made in the more congenial climate of the Dehra Dhún. The establishment of the worm in Kashmír is noticed further on.

So far the spread of sericiculture may be regarded as a gradual movement, extending over tracts of country either continuous or only separated by narrow stretches of sea. Thus, for example, we can perceive a gradual extension eastwards and northwards through Corea and Japan, southwards and southwestwards through the Chinese kingdom or kingdoms, the countries lying on the coast of the China Sea and the Gulf of Siam, Burmah, and India. We can imagine that, however jealous of the propagation of the knowledge of the process or of the means of obtaining silk, the Chinese could by no system of prevention check this almost natural movement of the insect. But the passage of the silkworm westward is *per saltum*, a series of forced marches. Moreover the emigrations of the worm already noticed seem generally to have included, if they did not altogether consist of, multivoltine species. In the passage of the industry westward to the north of Himalaya the univoltine species or variety alone played a part. This is readily accounted for. Looking at a map shewing the distribution of sericiculture, we should see a great blank between China Proper and what is now the country of the Atalik Ghazi. The great Thibetan table land has, apparently, never been the seat of silk-growing ; probably because its climate is inimical to the mulberry. Only the annual worm, in the egg stage, could endure the tedious transit of this inhospitable region. Passing westward we find the insect reappear in Khotan.

At pp. 238 and 239 of vol II of Julien's "Mémoires de Hiouen Thsang" we find the following account of the extension of sericiculture to Kiu-sa-ta-na or Koustana, a country identified apparently as Khotan :—

"Jadi ce pays ne connaissait ni les mûriers ni les vers à soie. Le roi ayant appris que le royaume de l'est (la Chine) en possédait, y envoya un ambassadeur pour en obtenir. A cette époque, le prince du royaume de l'est les gardaiten secret et n'en donnait à personne, et il avait défendu sévèrement aux gardes des frontières de laisser sortir des graines de mûrier et de vers à soie. Le roi de *Kiu-sa-ta-na* (Koustana) dans un langage soumis et respectueux, demanda en mariage une princesse Chinoise. Le prince du royaume de Chine, qui avait des sentiments de bienveillance pour les royaumes lointains, accéda sur-le-champ à sa demande. Le roi de Koustana ordonna à un ambassadeur d'aller au-devant de son épouse et lui donna les instructions suivantes :—'Parlez ainsi à la princesse du royaume de l'est : Notre royaume n'a jamais possédé de soie ; il faut que vous apportiez des graines de mûriers et de vers à soie ; vous pourrez vous-même vous faire des vêtements précieux.'—Apres avoir entendu ces paroles, la princesse se procura secrètement des graines de mûriers et de vers à soie et les cacha dans la ouate de son bonnet. Quand elle fut arrivée aux barrières, le chef des gardiens fouilla partout, à l'exception du bonnet de la princesse, qu'il n'osa pas visiter. Bientôt après elle entra dans le royaume de Koustana et s'arrêta dans l'ancien pays où fut élevé le couvent appelé *Loŭh-ché-keia-lân*. La princesse ayant laissé dans ce pays les graines de mûriers et de vers à soie au commencement du printemps on sema les mûriers ; et, quand l'époque des vers à soie fut venu, on s'occupa de cueillir des feuilles pour les nourrir.

Dès le premier moment de son arrivée, *il fallut les nourrir avec diverses feuilles.* Mais après un certain temps les mûriers se couvrirent de feuilles touffues Alors la reine fit graver sur une pierre un décret où était dit : Il est défendu de tuer les vers à soie. Quand tous les papillons des vers à soie se seront envolés, on pourra travailler les cocons. Quiconque enfreindra cet ordre sera privé des secours des dieux.' Aussitôt après, elle fit construire ce couvent en l'honneur de la déesse des vers à soie. On voit encore dans ce royaume quelques troncs desséchés de mûriers que l'on dit provenir des premiers plants. C'est pourquoi ce royaume possède aujourd'hui des vers à soie et personne n'oserait en tuer un seul. Si quelqu'un dérobe de la soie à un autre, l'année suivante il lui est défendu d'élever les vers à soie."

And again under the head Hotan (Khotan) we find in Julien, vol. I. of the "Pélerins Bouddhistes," pages 381 and 382, the following passage :—

"Les habitants sont habiles à filer la soie et à en fabriquer de belles étoffes."

And again :—

"Le plus grand nombre de personnes se vêtit de soie et de coton."

From the use of the word 'filer' we may probably infer that silk was grown in Khotan in the time of Hwen Thsang. But Marco Polo more than six centuries later does not mention silk in "Cotan," though he specially notices its cotton, hemp, and other products yielding textile fibres.

Klaproth thus endeavours to fix the *date* of the introduction of the worm into Khotan :—

"La soie paraît avoir été apportée par une princesse Chinoise qui épousa un roi de Khotan. Ce fait n'est pas marqué dans les annales Chinoises qui sont en général très exactes pour de pareils évènements. Il paraît, donc, qu'il a eu lieu pendant le temps de la division de l'empire, qui arriva après l'extinction de la dynastie des *Tsin* en l'an 419 de notre ère et cette princesse appartenait vraisemblablement à la famille des *Wei Septentrionaux* qui ne possédèrent que le nord de la Chine, tandis que le midi de ce pays se trouvait sous la domination des Soung."

The dates of the progress of sericiculture westward from Khotan through Transoxiana are not clearly traceable. But the geographies of Ibn Haukal and Al Istakhri, which both belong to the second half of the tenth century, show clearly that sericiculture properly so called was then firmly established in the provinces of Tabaristan and Jorjan on the south of the Caspian. Tabaristan was said to stand first among silk-producing countries. Yet this province yearly imported its "grainage" (*i.e.*, the eggs for breeding) from Jorjan. Merv, too, appears at that epoch as producing silk and also as exporting eggs to Tabaristan. Thus by the end of the 10th century we find silk established in Persia, and we may presume that in its gradual advance thus far westward it had struck roots, which still bear fruit, in Bokhara, Khiva, Samarcand and generally throughout the tract now known as the Khanates.

Long before the 10th century, however, the Persians had been conversant with silk, and had in fact held complete control of the supply of the commodity to Constantinople. They had in their hands the route by India and the Persian Gulf as well as the overland traffic, and Gibbon cites from Procopius the almost fabulous rates to which the monopoly of the carrying trade ran up the price of what was then a luxury. At the present day the mulberry grows almost throughout Persia, but the true silk region lies on the south shore of the Caspian between the mouths of the Araxes and the Gurgan, or, in other words, the provinces of Shirwan, Ghilan and Mezenderan,* the silk of Ghilan bearing a higher reputation than that produced by the other two provinces. Shirwan is a Russian province. The industry is also carried on in the Persian provinces of Kachan, Meshed and Yezd. England, Russia and France import raw silk from Persia, but its quality is low, it being ill-reeled and irregular. The Persian silk crop of 1863-64 is said to have yielded 1,129,000lbs. valued at £734,000. Of this produce 400,000lbs. was shipped to Great Britain, 30,000lbs. to France and 141,000lbs. to Russia. Within the last few years the yield has much diminished. Indeed Sir H. Rawlinson speaks of the silk crop as an entire failure, and Consul-General Jones in his report for 1870, writes of the "destruction of the silk-trade of Ghilan." In fact the crop of 1869 was only valued at £200,000, or not one-fifth of the value of the crop of 1864, which was estimated at more than one million sterling. It is probably from Persia that silk culture spread into the Caucasus and Mingrelia, where, however, it does not seem to have attained any great development.† The sericiculture of Afghanistan is probably an offshoot of that of Persia or Bokhara. Yakub Khan, son of the Ameer, was at one time said to be endeavouring to revive this industry at and around Herat as a means of putting money into his coffers. But the actual outturn of Afghanistan silk cannot be estimated. Kashmir also derives its silk from a Bokhara source. We are informed by Babu Nilambar Mookerjea, the Chief Justice of Kashmir, that the worm and mulberry were both introduced from Bokhara into the valley about the beginning of the 16th century.

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* Of this very tract Marco Polo writes :—"It is from the country on this sea also that the silk called *Ghellé* is brought." Colonel Yule notes thereon "The province of Gíl gave name to the silk for which it was, and is still, famous. * * * This *seta ghella* is mentioned also by Pegolotti and by Uzzano, with an odd transposition as *seta leggi*, along with *seta masandroni*, i.e., from the adjoining province Mezenderan." *Yule's Marco Polo, bk. I., chap.* 4.

† Marco Polo, however, speaks of silk being produced "in great abundance" in "Georgiania" a region which, as laid down by Colonel Yule, would include these countries.

It was not till the middle of the 6th century of our era that the silkworm was introduced into Europe. After an unsuccessful attempt to stimulate to competition "his Christian allies, the Ethiopians of Abyssinia, who had recently acquired the arts of navigation, the spirit of trade, and the seaport of Adulis (Zoulla) still decorated with the trophies of a Grecian conqueror," the emperor Justinian found by a lucky chance the means of gratifying his wish to defeat the monopoly of silk hitherto held by the Persians. This chance was the advent of "two Persian monks" who had been long resident in China, and who now offered to import the eggs of the silkworm. They were liberally encouraged by Justinian, and Gibbon relates (not without a scholarly sigh at the thought that they did not rather bring another Chinese art, and so preserve to us "the comedies of Menander and the entire decades of Livy") how they "again entered China, deceived a jealous people by concealing the eggs of the silkworm in a hollow cane and returned in triumphw ith the spoils of the east." "Under their direction," he continues, "the eggs were hatched at the proper season by the artificial heat of dung, the worms were fed with mulberry leaves, they lived and laboured in a foreign climate, a sufficient number of butterflies was saved to propagate the race, and trees were planted to supply the nourishment of the rising generations. Experience and reflection corrected the errors of a new attempt, and the Sogdoite ambassadors acknowledged in the succeeding reign that the Romans were not inferior to the natives of China in the education of this insect and the manufacture of silk." M. Pariset conjectures that it was in fact from Khotan * that the two Persian monks brought the worm to Constantinople. The Sogdian embassy, to which Gibbon refers, was sent expressly to negotiate a trade in silk, and Menander tells how it had been preceded by an ineffectual mission with the same object despatched to the court of Chosroes. The Persian monarch is said to have rejected the overtures of the Sogdians and burnt the silk, declaring that his country had no need of *τῆ ἐκ Τουρκῶν μετάξῃ*. But though M. Pariset infers from this phrase that silk was produced in the country of the Sogdians, or say Transoxiana as defined by Vambéry, neither the narrative of Maniakh's embassy to Justin, nor that of the embassy of Zemarchus to Dizaboul,

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* In further support of this view he appeals to the inscription of Si-gnan-fou as proving that the first entrance of Christian monks into *China* was in the 7th century. And one might also ask whether in those days it would have been possible to convey eggs from even the nearest point of China to Constantinople in time to prevent their hatching on the road.

seems to prove more than the desire of the Turks then dominant on the Oxus, to promote a *carrying* trade between China and the west.

The notices of the spread of sericiculture in the Byzantine empire are singularly scanty. Indeed, M. Pariset, whose industry in collecting all information is perhaps more commendable than his ingenuity in building theories thereon, expressly admits that there is no direct mention in the Greek literature of the period of raw silk as a product of the Eastern Empire, before the 11th century. M. Pariset supposes an "industrie séricicole" established in Syria and destroyed or maimed by the Arab incursions in the 7th century. But he seems to infer too readily from the undoubted celebrity of the silk *manufactures* of Antioch that the material was locally produced. Nor does the industry seem to have taken root in Asia Minor till a very much later date.

In the European portion of the empire the industry was of very slow growth. Indeed it seems doubtful whether the etymology which refers the name "Morea" to the mulberry is not a mistaken one, for it is applied to the west coast of the peninsula while the manufactures had their chief seat at Corinth, Argos and Thebes. M. Pariset clearly exposes the inaccuracy of the passage in Gibbon's 53rd chapter, which would have us to believe in the existence of a flourishing silk industry in the Peloponnesus at the end of the 9th century. In fact it is only from the narrative of the Norman invasion that we gather the prosperity of the silk manufactures of Greece, and nothing definite can be made out as to the extent to which silk was *grown*.

At any rate it seems clear that the sericiculture of Greece, Asia Minor and Syria including Cyprus and Crete was originally derived from the brood imported by the Persian monks. Silk is still produced in these regions. The total outturn of the Morea, Cyprus and Crete seems to be about 150,000lbs. annually of a silk of inferior quality. In 1836 Syria produced 856,000lbs. of raw silk, and the annual outturn of Asia Minor is said to be about 1,200,000lbs. The silk of Broussa is mentioned in the 15th century, but its present high character, due to improved reeling, only dates from the present century.

The Arabs now became the chief agents in promoting the spread of sericiculture. In their hands the worm passed through the north of Africa into Spain. Strüve in his "Handelszüge der Araber," as quoted by M. Pariset, cites "Abu Obaid" to shew that the mulberry and the insect thrive at Cabes on or near the north coast of Africa; a mulberry tree there was said to yield more profit than five trees in other countries, without the silk suffering. If this "Abu Obaid" be Abul Kasim Obaidullah, better

known as Ibn Khurdadbah, the testimony would belong to the second half of the 9th century. At any rate Ibn Haukal in the first half of the 10th century speaks of the silk manufactures of Cabes, and Edrisi in the 12th century speaks of the silk fabrics of that town (though then the industry had declined and been to a great extent replaced by the manufacture of leather), and of Kasr Sajja (three miles distant) as well as of the numerous mulberry trees round the town of Sort. The industry seems to survive in Tripoli, which in 1862 is said to have yielded 126,000lbs. of raw silk.

The exact date of the establishment of the insect in Spain is not easily to be ascertained. But Estakhri (1st half of the 10th century) speaks of silk as among the products of the country and Edrisi expressly mentions the sericiculture of Jaen. "Jaen," he writes, as translated by Jaubert, "est une jolie ville. * * Il en dépend trois mille villages où l'on élève les vers à soie." In the Iberian peninsula the industry still survives or did till lately survive. In 1843 Spain produced about 2,000,000lbs. of silk, of which Valencia yielded three-fifths and Murcia and Grenada each one-fifth. The cocoons are said to be excellent, but the silk, reeled by the peasantry, is irregular. In Portugal the industry has within the present century attained a considerable development, and 7,500 cwt. of *cocoons* are said to be yearly exported.

It has been usual to attribute to the Normans the introduction of the silkworm into Sicily. But M. Pariset shews conclusively that sericiculture must have been first established in that island by the Arabs. The very names Sakhrat-el-harîr (silk rock), and Nahr-tut (mulberry river), cited by Edrisi, prove this. Indeed had Roger introduced the silkworm, his eulogist Edrisi would hardly have omitted to notice the circumstance. Moreover Edrisi's work was finished in 1154. He writes of a province of Sicily as producing much silk. If the introduction of the silkworm only dated from the sack of Thebes and Corinth by the Normans in 1147, it would hardly have been possible to speak of Sicilian sericiculture in these terms only seven years afterwards. And this view is confirmed by the fact that an authentic specimen of the Arab silk manufactures of Palermo is now extant at Vienna in the shape of the "manteau de Nuremberg." The following extract from Gibbon must therefore be read with some reservations :—"This emigration of trade distinguishes the victory of Roger from the uniform and fruitless hostilities of any age. After the sack of Corinth, Athens and Thebes, his lieutenant embarked with a captive train of weavers and artificers of both sexes, a trophy glorious to their master and disgraceful to the Greek emperor. The king of Sicily was not insensible of the value of the present, and in the restitution of the prisoners, he excepted only the male and female manufacturers of

Thebes and Corinth, who labour, says the Byzantine historian, under a barbarous lord, like the old Eretrians in the service of Darius. A stately edifice in the palace of Palermo was erected for the use of this industrious colony, and the art was propagated by their children and disciples to satisfy the increasing demand of the western world. The decay of the looms of Sicily may be ascribed to the troubles of the island and the competition of the Italian cities. In the year 1314, Lucca alone among her sister republics enjoyed the lucrative monopoly. A domestic revolution dispersed the manufacturers to Florence, Bologna, Venice, Milan, and even the countries beyond the Alps, and thirteen years after this event, the statutes of Modena enjoin the planting of mulberry trees and regulate the duties on raw silk."

In Italy the worm found a most congenial habitat, and the industry spread almost over the whole peninsula. For a time, too, the manufacture of silk fabrics in Europe attained the greatest success in Italy, and even in the beginning of the 17th century, the traders of the East India Company cite the silks of Naples as affording the highest standard of comparison. But with the decline of the great Italian republics, the silk-weaving industry passed into France and the Netherlands. Still Italy has remained one of the great sericiculturist countries of Europe, and the annual value of cocoons is estimated by the *British Trade Journal* at upwards of 11 millions sterling.

From Milan the worm was introduced by Francis I. into the Rhone valley. Henry IV. was much interested in the encouragement of the industry, and patents of nobility were conferred on those who persevered in the pursuit for 12 years. George Lord Carew in his 'Relation of the State of France under Henry IV.' addressed to King James I. writes "He (Henry IV.) hath caused most of the gentlemen and pensioners of his realm to plant mulberry trees in their grounds for the nourishment of silkworms, and told me he hoped to make his realm the staple for all the silk that should be worn in all these northern parts of Europe, both in his own country and likewise in your Majesty's dominions, the Low Countries, Denmark and other regions adjacent to the Baltic sea. But some Italians of good judgment with whom I have conferred touching this point, have told me that in the end all this will come to nothing, for that silkworms here cannot prosper, the country being too cold for them, so that, if they die not, the shell which they shall produce will never be good." Lord George's Italian friends' prediction has not been verified by facts, for the silkworm has occupied the whole valley of the Rhone, spread northwards and westwards, and in 1853 France produced about 5 million pounds of raw silk.

This is the last great stride in the progress of the silkworm as

the object of an industry on any great scale. Attempts have, however, not been wanting to extend the spread of sericiculture, and the epizoic which has of late years proved so disastrous to the broods of France and Italy, has given a fresh stimulus to such efforts. But on the success of these more modern experiments it would be premature to pronounce. The crave for silk fabrics which prevailed in the 16th and 17th centuries is well known. Hence the prominence of the silk trade in the annals of the E. I. Company. In 1617 George Lord Carew writes to Sir Thomas Roe, "There is such a madness in England to be clothed in silk, that we cannot endure our home-made cloth." It was this "madness" that prompted the efforts of James I. to naturalise the worms both in England and in the plantations of Virginia, and so provide, within his own dominions, material for the industry of the Flemish weavers, whom the sack of Antwerp had driven over to England. Similarly nearly a century later, the revocation of the edict of Nantes, and the impetus thus given to the silk-weaving industry in England by the immigration and settlement at Spitalfields of the French Protestant artisans, led to the attempt of the Sieur de la Forêt in 1699 and the Chelsea Park Company of 1718. In a sericiculturist point of view these experiments were unsuccessful, but we owe to them some fine old mulberry trees. Nor have the subsequent attempts had any appreciable commercial results. The Company started nearly 50 years ago to grow silk in the county of Cork seems to have been rather a piece of "financing" than an honest speculation. At least "Father Prout" conpares it to the "lottery humbug got up by Bish and O'Connell," of the *mala fides* of which he speaks in the plainest terms. The dilettante experiments of more recent date only prove that the worm with care can be raised in the English climate, and will spin a cocoon more or less valuable, a fact known to most schoolboys and hardly requiring further proof. Indeed, still more inclement countries have seen the insect successfully reared, and an attempt was made to establish sericiculture in Sweden as a permanent industry. In Bavaria, Hungary and Turkey in Europe the worm has in fact attained a footing, and these countries yield, or have recently yielded, a certain amount of marketable raw silk. Algeria as an offshoot of the French industry, and St. Helena, Jamaica, Mauritius, Tasmania, the Australian settlements, New Zealand and South Africa among our own colonies, have each been the scene of various attempts, more or less successful, to naturalise the silkworm as the producer of a commercial staple. But none of them have as yet been on a scale sufficient materially to affect the total silk-supply of the world. Egypt, Madagascar and some of the islands of the Pacific have also been tried, and in California a promising experiment is in progress, the insect there completing its circuit of the globe,

and the worms imported direct from Japan meeting their cousins distant by innumerable descents, from the broods of France and Italy.*

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* It is curious to contrast the painful progress of silk through 40 centuries with the triumphant and almost magically rapid career of "divine, rare, superexcellent tobacco." The history of the names of the two substances are also in marked contrast. The soul-subduing herb of the west carries its native name everywhere. The etymology of the various names for silk is by no means so simple. The filament or fabric did not carry its own native name with it, but each nation applied somed escriptive word of its own. Thus in Burmese we have "po"; in Malay and Javanese "sutra" (Sanskrit imported bodily it would seem and meaning at first "thread" generally and so silk thread *par excellence*.) The true Indian name seems to be "pât" which holds its ground in Assam and appears in the Tamil "pattu." Here again may be traced the limitations to one specific material of a word originally of more general application. Persian supplies "abresham" and "resham," the latter now the ordinary term for silk in India. The Arabs christened silk "harîr" (a word connected with harra, which Freytag renders "nobili stirpe natus et ingenuus fuit," the etymology being base on the pre-eminence of silk among textile materials). Arabic also adopted "abresham" from the Persian and transformed, so Freytag seems to say, the Persian kazh into kazz. The Greek σηρικόν and Latin "sericum" have been already noticed, and to these are attributed Anglo-Saxon "seole" (whence later "silk") and the kindred words found in the Scandinavian languages. German and the Romance languages (Germ. "seide," Italian "seta," Spanish "seda," French "soie") have gone to some other source. Brachet puts down "soie" to *latin* "seta" bearing the meaning of *silk*. Facciolati gives no such meaning nor is the word to be found in the numerous quotations from the later Latin given in the notes of M. Pariset. Calcutta does not apparently boast a copy of Ducauge, which would probably solve our doubts. The Greek μέταξα appears first, according to Pariset in the 4th century A.D.

ART. III.—THE REVIVAL OF ISLAM.

OF late years, public attention has been often directed to many events as indications of a Revival of Islám. Now, we are pointed to the Wahábís in Arabia, ruling over half the country from their capital in Nejd; then, to their widespread organisation in India, with its 'head centres' in all large Muhammadan cities, its Maulavis wandering through Bengal preaching the *jehád* as the most direct route to Paradise, its bravoes ready to assassinate any official who may appear obnoxious to the leaders, and its ceaseless efforts to arouse the Pathán border tribes to some greater enterprise than the striking down of individual káfirs.

Again, we have been pointed to the Muhammadan risings in Yemen and Kashgar, to the unyielding fanaticism of Khiva and Bokhara welded into unity and firmness under Russian domination, to Circassian and Turkoman hordes flying from Russian territory into North-Eastern Turkey, and to the restive impatience of the Turkish people under the slow, but steady, impact of Western ideas, resulting in fears of massacres of the Christian population, and in "new mosques, new schools, new teachers, all on the severer model of what may be called the nineteenth century Muhammadan revival, the same of which Arab Wahabeeism is the exaggerated prototype, multiplying over the face of the land in excess of actual requirement. Ramadhan is observed, and prayers more strictly performed than formerly. High and low, the nation is in training."—So says Mr. Palgrave in the *Cornhill Magazine* for November 1868.

Anon we are told (*Times*, August 29th, 1873) that "year after year Islám is converting hundreds of thousand of our Indian subjects, and especially the natives of Bengal, to the faith of the *Koran*. This conversion, too, not now accomplished at the sword's point, but in the peaceful shadow of British rule, works a marvellous change in the very inmost nature of the converted. It is said that the converts to Muhammadanism who are enlisted from among the unwarlike population of Bengal assume, with this new faith, a hardihood of character which would make them dangerous enemies and priceless allies."

For our own part, we cannot attach the importance that some do to any, or all, of these statements. They may receive an altogether different interpretation; their cause is not revival from within, but pressure from without. The crescent is waning, not waxing. Nearer the horizon, the fog makes it loom large to the eye; but even while we look, it is sinking from view—for ever. Province after province is year by year torn from Islám; the ideas of modern, *i.e.*, Christian

civilisation impinge upon its surface with ever-increasing weight and intensity; and, with the mighty arms of Britain encircling it on the south, and the ever advancing stride of the Russian colossus from the north, is it any wonder that a shiver of deep foreboding thrills from time to time through every conscious fibre of Islám as the long debate between the Cross and the Crescent draws toward its close?

But to call this a *Revival* of Islam, is as utter a misnomer as it would have been to call the American rebellion a revival of slave-holding. The Southern leaders foresawt he approaching doom of slavery; and rightly judged that if a struggle *must* take place with the ever-increasing power and wealth of the North in defence of "the peculiar institution," it had better be in 1861 than in 1871, when the odds against them would be still heavier. They rose, failed, and fell, with the cause they defended so bravely and—uselessly. So, too, it is with Islám. Its approaching doom may intensify the prejudices of its ignorant supporters, until they rise in frantic defence of what they deem dearer than life, only to be trampled out of existence by the overwhelming legions that defend modern civilisation. We may pity their misguided zeal, and deplore their fate; but as Christians, our sympathies are due to the broader interests of humanity involved in the struggle.

Still, any *general* outburst of fanaticism among the 130 millions of Islám is very improbable; it possesses no cohesive force, no central authority sufficiently strong to compel obedience and weld the mass into an instrument fitted to the conditions of modern war. Sunni, Shíah, Ahmadi and Wahábi hate each other as heartily as Spaniard and Dutchman in 1573, or Catholic and Orangeman in 1873. Mere numbers, however fanatic and brave, are worse than useless when hurled, half armed and undisciplined, against modern military formations, armed only with the old muzzle-loader; how much more so against modern tactics, rifled cannon, the breech-loader and the mitrailleuse. Unaided by these modern appliances, a successful *jehád* is impossible, while their effective acquisition by Islám is equally so—for this implies accumulated wealth, the product of organised, successful industry and economy, two qualities foreign to the Muhammadan character of the present day, as all acquainted therewith well know.

Egypt, with her vast resources, has run into debt in a time of profound peace, at the rate of £6,000,000 a year for the past ten years; while her last throw for a loan of £32,000,000, shews the recklessness of the bankrupt spendthrift, doubtful of the further gullibility of the money-lenders. Turkey comprises within its limits the ancient Mesopotamia, Syria, Asia Minor, Thrace and Macedonia, once teeming with population, threaded with solidly-built roads, dotted thickly with cities and

harbours, and supporting with ease the wars of Alexander, of his successors, of the Lower Empire, and of the khalifs of Baghdad. Now, barely £4,000,000 a year is squeezed out of it, not a decent road exists in the country, save what has been made by the hated Franks with borrowed capital ; three-fourths of the land is in the hands of the priests, and hence, exempt from taxation ; the remainder, when held by Muhammadans, pays a tenth of the produce as land-tax, when held by Christians, five-tenths, in addition to the tax for exemption from the army. The Turks do not, and the Christians dare not, invest capital in cultivation ; hence, says Sir H. Rawlinson, "In the hands of the Turks the country never will improve, for the faith of Islám is incompatible with civilisation." And hence its financial career, even amid profound peace, consists principally of the operation known as "flying kites"—paying former loans by raising new ones as long as its fast waning credit will permit. The ruler of Persia, too, has just put all the resources of his country in the hands of a Russianised Jew, to be manipulated by English engineers and European capital into some semblance of modern civilisation. But, were he already a feudatory of Russia, he could hardly carry out her designs more ably, nor better secure the impossibility of Persia joining in a *jehád*, than by the direction given to the first Persian railway—from the Caspian to Teheran. For either or all of the leading Muhammadan powers, therefore, to proclaim *jehád* would be simply financial and political suicide. Of Central Asia it is sufficient to say that in ten years a Russian force, never more than 16,000 strong, has so completely subjugated it as to fully justify Vambéry's eloquent remarks on the progress of the Russian arms :—

"Towns and countries hitherto unknown to the denizens of the Western world have been thrown open, and places where the European traveller could only venture in disguise, and at the peril of his life, are now not only free and safe, but actually governed by Christians. Churches and clubs have been opened at Tashkund, Khojind and Sumarkand ; and the monotony of the muezzin's chant is broken by the cheerful sounds of the bells of the Greek churches, more terrible to Muhammadan ears than the roar of artillery..... The Russian successes in Central Asia have dealt Islamism the severest blow it has ever received from Christendom in the course of their thousand years of struggle. In modern days, the powerful influence of Christian Europe had permeated all parts of Muhammadan Western Asia, the holy places Mecca and Medina themselves had not escaped the innovating spirit of the times, but the Muhammadanism of Central Asia retained its primitive character pure and undiluted, the faith flourished unopposed and uncontroverted, Bokhara, not Mecca, had become practically the spiritual centre of Islam. Thither came the

ascetic, the pious member of a fraternity, and the enthusiastic theologian ; and though not generally known, it is an undoubted fact, that zealous Moslems in all parts of the Ottoman Empire, in Egypt, Fez, and Morocco, received thence the inspirations of their religious enthusiasm. The sight of this holy ground profaned by the presence of unbelievers, and ruled by them, must be intolerable to all pious souls of the Islamite world, and the dust raised by the fall of this chief pillar of Islam, as Bokhara has always been called, will long hang as a dark cloud, overshadowing for many a day, if not for ever, the horizon of the future prospects of Islam."

In Central Asia, then, the *jehád* has been tried and failed. Kashgar must fall, sooner or later, and the outburst of Muhammadan fanaticism in Western China is utterly crushed already. And if Vambéry's idea of the effect on Islám of the fall of Bokhara be correct, what will be the effect of the long-delayed, yet inevitable, fall of Constantinople, and the political extinction of Islám? For, since all this political and financial debility results from the operation of a constant cause—the political and religious character of Islám—it must go on at an increasing rate, ensuring the ultimate and speedy political extinction of Islám, wherever it comes in contact with modern civilisation.

Returning to India in our survey, we find here a larger Muhammadan population than in any other country ; indeed, Bengal alone contains more Muhammadans than there are in Turkey itself. Their distribution, too, as shown by the recent census, contradicts all our previous notions thereof. In the North-West Provinces, the seat of Government of the Great Mughul, ever reckoned the stronghold of their power and influence, they number only 14 per cent. of the population. Patna and Behár, usually thought to be strongly Muhammadan, only contain 12 per cent. ; in Bengal Proper, they number about half the population, while in East Bengal, the great basin drained by the lower waters of the Brahmaputra, they form from 70 to 80 per cent. of the population, and in some districts nearly the whole.—(*Bengal Administration Report*, 1871-72, pp. 33).

Even now, just as frequent accessions to Hinduism occur from among the aboriginal tribes, similar accessions occur to Islám from among the low caste Hindús, and from the same cause—the greater consideration enjoyed by a Hindu as compared with an outcaste, or by one of the vast Muhammadan community as compared with the despised Dom, Chandal, and other semi-Hindu communities. We have known several instances of this in West Bengal ; but have never yet heard, either East or West, of a high caste Hindu accepting Islám from religious convictions. Some advantage more appreciable by the Hindu mind, as for instance, a desirable marriage connection, especially in the case of Hindu

widows, was invariably the motive for the change of name—we can hardly say, of faith.

But when we read in the *Times* that "year after year, hundreds of thousands, especially of the natives of Bengal, are being converted to the faith of the *Koran*," we, who have been long resident in Bengal, and specially conversant with the religious propagandism therein, are lost in astonishment at our ignorance or—at that of the *Times*. And our astonishment is by no means lessened when we notice that such small matters as the locality, time, witnesses, &c., of this vast propagandism are left to be added *d discrétion* to suit the reader's taste and ability to digest wholesale assertions.

In the first place, it is assumed that a census, accurate at least within scores or hundreds of thousands, has been taken yearly or decennially, so as to obtain the relative proportion of Muhammadans and Hindus at each succeeding period. But when and by whom, was this census taken? Evidently it must have been taken by some "special correspondent" of the *Times*, with a skill surpassing even the enterprise of the *Telegraph* or the *New York Herald* in the supply of news; for neither the people nor the Government of Bengal know any thing of its performance. The *Bengal Administration Report*, 1871-72, p. 26, says:—

"As an illustration of the extreme point to which the want of statistical knowledge of the people had reached in these provinces, the following figures are given showing the difference between the population of some important districts as given in grave statistical returns by the authority of Government within the last few years, and stated in the Administration Report, published in 1870 according to the latest returns, and that now ascertained by census:—

	Population according to return of 1870.	Population according to present census.
Nuddea (perhaps the most cared for and most fully administered metropolitan district in Bengal) ...	568,712	1,812,795
Faridpore	147,127	1,012,589
Pubna	337,679	1,211,594
Cuttack	215,835	1,449,784
Monghyr	755,389	1,842,986
Kamroop or Gowhatty	80,861	561,681

And, altogether, the difference between the estimated census of Bengal in 1870, and the actual census of 1871-72, amounted to nearly 20 millions! With such striking illustrations of the utter ignorance which prevailed among even the governing class on the subject of the mere numbers of the population, not to say

any thing of the relative proportions of Muhammadans and Hindus in Bengal, it looks very like Munchausenism to pretend to such accuracy on these points as to affirm a yearly accession to Islám of hundreds of thousands of Hindus in Bengal; and we are probably not far out in attributing this feat of historical accuracy to the same genius who recently announced in an article on Afghánistán in the *Times*, the discovery that Dost Muhammad was a Pindári chief!

Again, if this vast proselytism exists anywhere, it must be in East Bengal, where the population are nearly all Muhammadans; it is there we shall find "under the peaceful shadow of British rule," the eager intellectual life, the religious vitality and antagonism implied in this vast work of converting hundreds of thousands to Islám. But the one great complaint of the Christian missionaries who traverse East Bengal is the utter absence of these qualities in Hindu and Muhammadan alike. Two years ago when these statements were just made by the *Spectator* in its review of Mr. Hunter's "Our Indian Musalmáns," one of the Baptist Missionaries in East Bengal, who has probably traversed it more extensively than any other living European, made the subject one of special enquiry by himself and his preachers for more than a year, in every village, Hindu and Muhammadan, that they visited; but, save solitary instances, few and far between, they failed to find the least trace of any movement which could give colour to such broad assertions as those used by the *Times* and *Spectator*. Indeed, the mass of the population of East Bengal, Hindu and Muhammadan alike, are so steeped in ignorance, that those repeats their *mantra* and these their *namaz* without understanding a word of it; and the reason usually given for their particular faith is ever the same "Our fathers were Hindus (or Muhammadans), hence we must be."

Such, too, is the testimony of the officials, whose opinions, on enquiry, coincide with the statements of the *Friend of India*, (September 4th, 1873), in reviewing the official Report on Maimansingh. "With the people of Mymensingh ignorance means, not superstition, but indifference to all religion save ancestral forms of worship. The toleration born of this indifference makes Hindus and Muhammadans good friends; though Sunnis, the latter keep the Mohurrum as a sort of spectacle in which the Hindus join." And, *vice versâ*, the greater portion of the crowd enjoying the Hindu spectacles in Dacca is generally Muhammadan; while those of the rural districts, when remonstrated with for their attendance on the idolatrous ceremonies of their neighbours, sometimes reply:—"It is the zemindar's order," or, "others do it, so we do." Taylor, in his History of Dacca (1840), gives the same character to the people at that time. "These two classes (Hindus and Muhammadans) live

in perfect peace and concord; and a majority of individuals belonging to them have even overcome their prejudices so far as to smoke from the same *hookah*," (p. 257).

Yet another cause has operated indirectly to render impossible any such accessions to Islám in Bengal as that affirmed above, in the different attitude taken by the Hindu and Muhammadan communities toward English education. The ruins of magnificent forts, palaces and mosques, the traditions handed down in the community, the stories and allusions of their scanty current literature to the glories of the Muhammadan rule, all remind the Muhammadans of the time when Islám ruled unchallenged in the land, when the infidel trader came with cringing steps to beg a footing where now he rules triumphant and unquestioned—so confident in his own might and resources, as to appear contemptuously oblivious of the very existence of Islám, other than as one of several expiring creeds. Every effort to shake off the grasp of the Christian has only tightened it; and the empire over the body, secured at Plassey, Baxár and Seringapatam, is now supplemented by equally insidious and persistent efforts to subjugate the mind also to the sway of Christian civilisation, by schools, colleges, tracts, books, and missionaries. Naturally, therefore, the struggle between loyalty to the religious and political teachings of their ancestors, and loyalty to the Christian Government under which they enjoy such liberty and peace, fills many Muhammadan minds with perplexity, rage and despair. Hopeless of changing the current of events, they will not yield to its rush; hence it surges around and over them, burying them beneath a stratum of ignorance and oblivion; sweeping place, power and wealth from them into the hands of their Hindu neighbours who have prudently gone with the stream and through English education almost monopolized all subordinate officers under Government. Hence, when urging on respectable Muhammadans the duty of giving an English education to their sons, in order that they may have an equal chance with the Hindus in the battle of life, how often have our representatives been met with sentiments which, however courteously expressed, were tinged with defiant despair. "If they receive English education, they are sure to think themselves wiser than their fathers; they had better remain beggars in Islám, than be rich in this world, and lose all in the next." Or, as the Inspector of Schools, Eastern Circle, (*Bengal Administration Report*, 1871-72, p. 254) puts it:—"A well-to-do Muhammadan sent his son to the Government school. The boy was successful, and the father was urged to send his other son to school; the father replied that he might, under pressure, let one of his sons go to be made into an infidel, but he could not let more than one go to the bad in that sort of way."

But whatever be the religious advantages which the Muham-

madans imagine themselves to retain from this refusal of English education, it has been an undoubted social disadvantage to them in the eyes of their Hindu neighbours. For the Hindu pen to-day occupies the place once held by the Muhammadan sword ; the Bengáli Bábu seems as indispensable to British rule, as the Pathán or Rájpút *talwár* was to the Mughul rule. By English education, the child of the Dom or Chasa may rise to rule over the descendants of the Bráhmans and Patháns before whom his fathers grovelled in the dust. The Muhammadan thus takes a lower place in the social scale by his rejection of education ; and such being the case, the shrewd Hindu cares not to link himself to a falling creed, which promises little to its votaries save ignorance, poverty, and hard work. Better keep the lax creed of his fathers with the hard work, in the hope that the key of education now offered to the millions, irrespective of caste or creed, but hitherto sullenly rejected by the Muhammadans, may unlock to his children the treasures of power and wealth hitherto possessed only by his oppressors. In such altered circumstances, what influence is left to the Muhammadan, strong enough to effect the conversion, year by year, of hundreds or even scores of thousands of Bengalis as alleged by those would-be-wise alarmists of the *Times* and *Spectator* ? They have been simply trading on the inaccuracies of previous guesses at the number of the population, and the consequent impossibility of finding the actual proportion of Hindu and Muhammadans ; they have given us surmise for certainty, and painted up fancy to supply the place of fact.

One other possible explanation of the above errors may be found in the rapid conversion of Sunnis and Shíahs into Ferázís or Wahábís, which has taken place during the past 20 or 30 years, and has possibly been distorted by osme writers into conversions of hundreds of thousands of Hindus to Islám ! For in the present downdard tendency of Indian Islám, it is not at all surprising that many Muhammadans should accept the teachings of Abdul Waháb, which may be simply summarised as an attempt to restore Muhammadanism to the exact form it possessed during the life-time of its founder ; discarding as idolatrous all modern exaltations of Muhammad or any other prophet, Imám or saint, and all forms, ceremonies and observances, originated since the times of the prophet ; and finally, insisting on the duty of spreading Islám by the sword the chief duty of the faithful, and the most direct way to paradise. The logic is concise and forcible to the devout Muhammadan, if not reasonable to us. By the sword Islám had been established, by the sword it must be re-established. God has placed the sword in the hands of Islám to re-assert the half-forgotten truth of His existence, to protest against the idolatry of the heathen and the fetishism into which the neighbouring nominally Christian com-

munity had fallen. But Islám had proved recreant to its mission, had fallen into the very superstition it was sent to destroy, and it had become a lifeless and corrupt formula, under the frown of the Almighty whom it had forgotten. To regain its original life, it must resume its original work, in the original way; "wherefore fight against the unbelievers, and be severe unto them; for their dwelling shall be hell."

These notions, introduced into East Bengal by Shariyátullah, the father of the notorious Dudu Miah, on his return from Arabia in 1828, and afterwards preached everywhere by the emissaries of Sayyid Ahmad who set up as the long expected Imám Mehdi, spread with great rapidity in East Bengal; and the sect now numbers as its adherents, so they boast, the majority of the Muhammadan population. And the process is still going on; indeed, a few months ago, we came into personal contact with a little episode thereof. Abdul Gafur, a Wahábi Maulavi, was joined by nearly all the inhabitants of a large Muhammadan village near Dacca, only 15 families holding back from the movement. The new creed was naturally tried on the recusants first, in the shape of violent abuse and ill usage. They appealed to the Hindu zamíndár for protection; and many of the new converts, not liking the turn things were taking, rejoined the recusants. A row ensued, the zamíndár fined some of the converts, forbad their putting up a separatist masjid, or receiving the obnoxious Maulavi into their houses under a penalty of Rs. 25. The Wahábís appealed to the nearest court; beaten there, they applied to the *hakims* in the city courts. Five or six cross-suits came off in quick succession; but though they gained their case in court under the lead of the indefatigable Abdul, the zamíndár's means of retaliation made them feel that victory was almost worse than defeat, until they seriously contemplated "pulling up stakes" and going elsewhere. "But," said Abdul and his people, "where are we to find so much unoccupied land? The Hindu zamíndárs are all leagued against us, and the Muhammadan zamíndárs do not care to help us; what are we to do?"

For my own part, I cannot quite sympathise with the outcry often raised against Indian Wáhabíism, but rather welcome its spread. It forces the apathetic Muhammadan community to think and inquire into the basis of its faith. It cuts away, at a blow, the whole fabric of Muhammadan tradition and superstitious observance; and thus narrows the issues respecting Muhammad to what he says about himself in the *Korán*, instead of what his followers say about him contrary thereto. It appeals to the sword as the sole arbiter between Islám and modern civilisation; an appeal that can have only one issue, as the slightest acquaintance with the vast military resources of Christendom, and the utter weakness of those of Islám,

will overwhelmingly prove to all, save a few insane fanatics. But to the Indian Government it presents a very grave aspect; for it may mean the uprising of vast masses of men, perhaps at no very distant date, armed with the firearms so carelessly allowed to pour *ad libitum* by way of Calcutta and Dacca, into the hands of the peasantry of East Bengal, until almost every peasant has a gun, that cares to buy one. It may mean the assassination of the officials, far and near, the massacre of hundreds of Hindus and Europeans, the sack and burning of countless villages; and it will then certainly mean the retaliating slaughter of thousands of ignorant Muhammadans, and the stamping out, under the heel of a vindictive war, of Wahábíism, the latest phase of Islám, as incompatible with modern civilisation, law, and order.

It is the acknowledged duty of the Indian Government to use every means to avert these possible eventualities; and hence it is well that the Government has decided "to give to the Muhammadans their full share of high class intellectual training, and of sound knowledge useful to them in life, combined, but not clashing with, that sound knowledge of Oriental tradition which belongs to their race and country." The difficulty lies in "framing for Muhammadans a course of secular instruction, which is the only kind that can be given in Government institutions, upon the study of a literature which on so many sides is intimately connected with their religion and doctrinal tenets."—*Resolution of Governor-General in Council*, June 1873.

It may be thought presumptuous on our part, but we cannot help suggesting that the framers of the desired course might find valuable help therein by examining the text books used in the American and French colleges and schools long established in Turkey and elsewhere within the borders of Islám, since the same difficulty in yet greater degree must have beset their efforts to lay down a course of study which should impart sound useful knowledge based upon modern science, and yet not arouse opposition from the people they sought to benefit.

Should such a scheme be carried out, and a sound knowledge of men and things as they *are*, not as they *ought to be* according to the Arab and Persian poets, be imparted to the respectable Muhammadan youth of the country, we might expect great things from it. The utter futility of all efforts to roll the nineteenth century back to the seventh, to resuscitate Islám in the face of the overwhelming and ever increasing powers of modern civilisation, would be gradually impressed on the next, if not the present, generation of Muhammadans; thus completely neutralising all Wahábí attempts to mislead them into hopeless rebellion. But if the course of study be mainly chosen from the literature and philosophy of Muhammadan writers, to secure which strenuous

efforts will doubtless be made, the evil will be only intensified; the conceit, the ignorance, and the isolation of the Muhammadans will become practically insuperable here, as in Turkey.

With all deference to the plans of the Government, we would suggest that it is not from the better class of Muhammadans who can afford to receive and profit by "their full share of high class intellectual training," that we have most to fear; but from the utterly ignorant and neglected Muhammadan masses, who imagine that they have little to lose and much to gain by overturning the present state of things—people so ignorant as to believe that the Sultán of Turkey is still king of kings, receiving tribute from all other nations; and that by his authority the Queen rules over India; so ignorant as to suppose that since their own neighbourhood is largely Muhammadan, while a Christian is hardly ever seen, the same state of things exists every where; and, reversing the real state of things, believe that Christendom itself only exists by the sufferance and supineness of Islám, and that the whole accursed *Feringhee* race (may their fathers' graves be defiled) might be swept from existence by one real effort of the might of Islám. Hence the disrespect, and sometimes insult, shown to Christians when wandering at times in out-of-the-way Muhammadan neighbourhoods. Now, were the Government to cover the districts largely inhabited by Muhammadans, as thickly as possible with vernacular schools, providing them with good maps and geographies, also with brief abstracts of history, Indian and European, as vernacular reading books, in addition to the usual primary course of writing, arithmetic, &c., were this course carefully taught by competent teachers, properly supervised, and checked by examinations upon which small scholarships for the higher schools should be made dependent, the Wahábí exhortation to rise and fight for Islám would frequently meet with the counter exhortation—"Go to school, you know not what you are saying."

This effort to remove the incubus of ignorance from the Indian Muhammadans, and the vast impending changes within and without Islám, possess peculiar significance for Christian missionaries. Unable generally to read their own vernacular, much less Arabic, the Indian Muhammadans are as ignorant of the *Korán* as the Sudras are of the Vedas; and this universal ignorance is a frequent excuse for avoiding all discussion of the issues between Christianity and the *Korán*. And when a Maulavi stands up as the champion of his ignorant co-religionists, as soon as he finds himself at all "cornered," somebody among his followers suggests, in all sincerity of course, "it is time for *namaz*"—whether it be one o'clock or six, it matters not; or, a row is carefully got up, under cover of which he discreetly retreats or the missionary is driven off, and the report is then industriously spread that the padre was completely used up.

Now, were the people educated, with the vernacular *Korán* in their hands, so that they could see the truth for themselves, such subterfuges would be impossible, the truth would be made manifest, Christ would be honoured, and his opponents silenced. For although, in some of its main features, Islám is directly opposed to the Gospel, yet its many points of agreement with evangelical Christianity form a common ground and authority for discussing the grave questions at issue between the rival creeds. And when we enter a Muhammadan village, and stand before its white Masjid, perhaps some grand old structure of ancient days, as we think that it stands, and has stood, perhaps, for ages, in silent protest against the polytheism around, summoning all to the worship of the One Invisible God, and are, perhaps, at once welcomed by the gathering people as *Kitábi-lok*, one cannot help feeling a sense of brotherhood which is utterly impossible to be realised in a Hindu village amid its proud Bráhmans, monstrous idols, and filthy phallic emblems.

But to return. While Muhammad affirms himself and his message to be sent specially to the inhabitants of Mecca "and the Arabs who dwell round it," yet he repeatedly asserts the divine origin of "the gospel, containing direction and light, confirming also the law which was given before it, and a direction and admonition to those who fear God; that they who have received the Gospel might judge according to what God hath revealed therein; and whoso judgeth not according to what God hath revealed, they are transgressors. We have also sent down unto thee the *Korán* confirming the scripture which was revealed before it, and preserving the same from corruption."—Sale's *Koran*, p. 82.

This oft-repeated affirmation of the close agreement of the *Korán* with the Hebrew and especially the Christian scriptures, susceptible as it is of clear and definite proof or disproof, affords, we think, firm ground for discussing the claims of Muhammad and the *Korán* to be inspired. Again, while the utter silence of the *Korán* respecting the doctrines of atonement and mediation, supplies ample disproof of its boasted accord with the law and the gospel—yet its denunciations of Mariolatry and image-worship, of the priest, martyr, rag, bone, and other fetish worship, which many Christian communities in the fifth century, and on through the dark ages, substituted for the direct appeal to the vernacular scriptures, and to the spirit of God as the ever living Teacher in the church, are hearty enough to find favour with the strictest Puritan in later times.

While, therefore, in discussion with Muhammadans we should at times apply the test implied in the challenge: "If it had been from any besides God, they would certainly have found therein many contradictions," (Sale's *Korán*, p. 65) we should aim rather to

take the *Korán* with us as far as we can, and then shew that it does not go far enough to meet the wants, the capacities, and the history of man.

The faith in the sovereignty of God and His irresistible will which made the Muhammadan arms invincible in many a perilous struggle, was all powerful to destroy, but powerless to uplift, without the aid of other ideas as adjuncts thereto. For it presents Him rather as an unsympathising engineer, an inexorable ruler, a destroyer of the weak and vile, rather than as one who pities us in our conflicts with temptation and sin, and designs to raise mankind gradually out of its misery and degradation. But herein is the glory of the Gospel—that it displays God as "not willing the death of the sinner;" instead, "the Son of Man came to seek and save that which was lost."

Again, this unqualified belief in the absolute will of God necessarily produces amid inaction, not patience, but that apathetic belief in fate which we see in the Muhammadans around us—fate against which there is no struggling, making men victims of indifference, languor, and despair, individual and national. But the "patient endurance" inculcated in the gospel, "worketh experience" of God's love, and experience hope, and hope life-giving energy, individual, and national.

So, too, pain, affliction, suffering, is proclaimed in the *Korán* as punishment on the erring and wicked; whereas the Gospel whispers hopefully, "Whom the Lord loveth He chasteneth, and scourgeth every son whom he receiveth." It says that suffering, trial, is but a blessed means of growth, development, strength; and that even "the Captain of our salvation" was "made perfect through sufferings." The Gospel thus reconciles the justice and goodness of God with the existence of suffering in the world—the *Korán* leaves the unsolved difficulty a huge blot on the character of the All-perfect and All-merciful One.

In order, therefore, to utilise the many points of contact between Islám and the gospel, as well as in view of the new scheme of Muhammadan education, it is absolutely essential that the vernacular *Korán* should be in the hands of the Muhammadan population; so that, like the Jews of Berea, they should be able to "receive the word with all readiness of mind, and search the scriptures daily, whether these things are so." And for this purpose, since it is impossible for us to force the Maulavis to issue an authorised translation,—at least, none can be had or heard of in East Bengal,—we would strongly recommend the re-issue of the Hindustáni translation published at the Presbyterian Press, Allahabad, 1844, revised and annotated suitably to the present juncture of events.

Next, just as in armies men are specially trained for the

cavalry, infantry, artillery and engineer services, so in our Indian Mission army, we should have men specially trained in the Arabic and Persian languages and literature, as well as in the vernacular of the district in which they are to operate, in order to act effectively on Islám,—men like Dr. Pfander, who would be regarded as Maulavis, and treated with corresponding respect by the Muhammadans themselves. And much of this preparation might be done at home, were the facilities offered by our English Universities, Oxford and London, for the study of Arabic, Muhammadan law, &c., thrown open to intending missionary students, free of charge, and irrespective of denominational status. Or, if no special facilities now exist in sufficiently concentrated form to carry out such a scheme, they might be easily provided, either by funds raised for the purpose, or by grants from the various mission societies labouring within the regions of Islám. Years of special study are thought needful for the administration of justice, and the service of the State—how much more needful then for the tremendous work of changing the basis of a nation's faith, of overcoming the prejudice engendered by ages of supercilious ignorance, of moving the secret springs of human action, and, with God's help, bringing the mind to empty itself and sit humbly down at the feet of Jesus, to be taught and filled by Him.

In the fast approaching time when, having vainly attempted to prevent the last Dar-ul-Islám from becoming Dar-ul-Harb, the Muhammadans, broken, dispirited, despairing, shall turn humbly and earnestly to consider the truths involved in the stern logic of events, if we can but have ready such a body of men, European and native, specially trained, and fired with apostolic zeal, they will with power and success point Islám to Jesus as the Prophet, Redeemer and King of all. "Then shall they look on Him whom they have pierced, and mourn." The Cross uprising in place of the Crescent will thrill the nations with awe; and out of the ferment a Christ-regenerated Islám may arise to proclaim the power and love of "God manifest in the flesh" with holy energy and fiery zeal, emulating in its rapid victories over the populations of Asia and Africa, the whirlwind progress of the Muhammadan arms in the seventh and eighth centuries. "If the casting and way of them (Islám) be the reconciling of the world, what shall the receiving of them be but life from the dead?"

ISAAC ALLEN, M.A.

Art. IV.—RIFLED ARTILLERY.

A paper for the general reader.

Part II.

In an article in our last number we endeavoured to give the general reader some elementary ideas on the subject at the head of this paper. In the hope that he may not have been "crammed with distressful bread," we will now endeavour to lay before him some further lucubrations calculated to enlarge his knowledge of the subject.

Probably the first rifled gun that was ever used in action was a breech-loader, the invention of Major Cavalli of the Sardinian Artillery; it formed part of the armament of the batteries of the besieger at Gaeta in 1848. It was a cast-iron two-grooved gun, firing a ribbed projectile. It was, however, not successful as many of the guns burst: the system was speedily abandoned.

Two years further back, Baron Währendorf, a Swede, was the first to bring forward a lead-coated projectile. A breech-loading gun of his invention was tried in various countries, including England, but the invention never attained the dignity of the crucial trial of being fired in action.

In the Crimean war of 1854-5, Mr. Lancaster's cast-iron oval-bore gun was tried but with very partial success. The gun being of so fragile a metal, his system was tried under very unfavourable conditions: and as it is quite possible that this system may yet be brought into use, it will be here succinctly described.

The oval-bore with a twist was far from being the invention of Mr. Lancester, for it is very clearly described in an article in Latin in the *Commentarii Academiæ Scientiarum Imperialis Petropolitanæ Tomus IV. ad Annum* 1729, *by Joh. Georg. Leutmann*, published in 1735; and as, perhaps, some of our readers may be curious to know how such subjects can be treated in Latin, we will quote the first paragraph alluding to the oval-bore.

"§28. Tandem singulare problema explicabo. Scil: conficere Sclopetum* cochleatis sulcis non præditum, quod tamen globulum gyrando circa suum axem proficit, ac si cochleatum esset cum tamen perspiciendo per tubum nul-

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* Gun: stlopétum (scl,) used in modern Latin for *a gun*, and like bombarda ("*musket*"), intended to express the sound of explosion (stloppus s. scloppus.=a slap, the sound produced by striking upon the inflated cheek) Pers 5, 13. Smith's Latin Dictionaries.

lo modo cognosci paterit, unde gyralem directionem concipiat globulus. Tale eclopetum omnia præstat quœ a cochleato tubo expectari possunt."*

The author goes on to describe and to figure an expanding file made in longitudinal halves, to be attached to the end of the rifling bar ; to this bar is given the usual rifling twist and thus by gradually expanding the two halves of the file by means of what are technically called "set-screws," a barrel originally a circle in cross section is given one forming an oval having the ordinary rifling twist.

In Mr. Lancaster's 32-pounder the major axis measured 6·97 inches and the minor 6·37 inches, so that considered as a two-grooved rifle the grooves were 0·3 inch deep at their centres. The pitch of the rifling was one turn in 56½ calibres of the minor axis. One of the great mistakes made was that the twist was increasing instead of uniform. Another mistake was that the wrought-iron projectiles were simply oval but without any rifle-twist upon them. Under such circumstances it can hardly be wondered at that the gun was most irregular in range and that the projectile being subject to jam in firing, the guns occasionally burst.

The French Artillery in 1850, under the orders of the President of the Republic, commenced experimenting seriously with rifled artillery : the experiments were carried on with frequent interruption owing to political events until May 1857, when France adopted rifled field guns as the armament of its artillery. The 4-pounder field gun—"*La mere des canons de campagne*" as the French Artillerymen call it—has a bore of 3·4 inches in diameter and 18 calibres in length ; it has six centering grooves, making one turn in 24·7 calibres and weighs 6½ cwts. The projectiles have 12 zinc studs in two rings to fit the grooves. The gun projects a common shell weighing 8·9lbs, and a shrapnel of 9¾lbs. The gun thus weighs 72½ projectiles. The charge of the gun is 1·2lbs; the relative charge or ratio of weight of powder to common shell is 1 to 7·4. The initial velocity is 1066 feet per second. The gun is of bronze. This rifled field gun was the first to appear in battle and made its *début* at Solferino in 1859. Of its performance the French official report of that battle says :—

"In the midst of the incidents of this combat of twelve hours duration, the cavalry was of powerful assistance in checking the efforts of the enemy on the side of Casanova. On several occasions Partounéaux's and Desvaux's division charged the Austrian infantry and broke its squares. But it was our new artillery which

* Finally I will explain a singular problem. To wit, to make a gun not provided with helical grooves which nevertheless projects its ball twisting round its axis, as though it had been rifled, although for all that by looking down the barrel it shall in no wise be open to discovery, whence the ball derives its direction of revolution, such a gun excels in all things which can be expected from a rifled barrel.

produced the most terrible effects on the Austrians. Its balls went to distances which their guns of the largest calibre could not respond to, and strewed the plain with their dead."

An eye-witness of the battle writing to the *Times* on the 25th June 1859, says :—

"It was in this flight that the immense superiority of the new French rifled cannon shewed itself. The lightness of the pieces is such that they could be brought up hills so steep that even infantry had no small difficulty in scaling them. Still the range of them and their precision are almost incredible. You could see their shells bursting among the guns and infantry of the enemy, while the shells fired from his guns at the highest elevation were falling short or bursting in the air."

Again the *Times*, on the 5th August 1859, publishes the following remarks on this battle :—

"When the batteries of the 9th Corps (Austrian) opened fire on the plain of Medole they were so quickly mauled by the superior number of the French guns that it was found necessary to withdraw them. In order to do this with effect, Mensdorf's cavalry was ordered out into the plain, and the hostile fire was then divided with so much success, that the batteries were limbered up with smaller loss than might have been expected. But military men very properly enquire whether heavy Dragoons were not organized for a different purpose than that of drawing off an enemy's fire from artillery. The veriest tyro understands how troops may be moved under cover of artillery, but what shall we say of artillery moved out of fire under cover of cavalry. Had Count Mensdorf been near the enemy, there would have been some sense in ordering him out into the plain ; but it was really too bad to send him into a plain covered by hostile balls fired from a distance of 3,000 yards and out of range of any guns such as cavalry divisions generally take with them. One can fancy the rage of the officer in command of the battery that first accompanied Mensdorf when, in five minutes after he entered the plain of Medole, five of his guns were dismounted at a distance which rendered any attempt on his part to fire perfectly useless. A second battery took the place of the first one. In less than a minute three of his guns were dismounted.

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"I twas here that the superiority of the rifled cannon over ordinary artillery was finally and decisively proved. The horizontal fire on the plains of Medole dismounted guns more than 3,000 yards off. At Solferino the practice was by no means so successful, and the French, firing from heights against heights, did not aim well. The rifled guns may be said, however, to have rendered invaluable service."

The reader will not fail to remark, when he compares the performance of this gun in 1859 with that in 1870, what a great difference it makes in the accuracy of practice, whether the gunner's aim is undisturbed by the bursting of an enemy's projectiles about his ears, or otherwise. Further the peculiarly suitable nature of the plain for good practice, the size of the object aimed at, the number of guns firing, as well as the safety of the gunners go far to account for the effect of the guns in 1859.

The echoes of these guns rang in the ears of artillerymen and soldiers in all parts of the world. The principle of *Omne ignotum pro magnifico* intensified the effect of the new rifled guns. Gunners and mechanists in all parts of the world turned their attention to the subject.

Mr. W. G (afterwards Sir William) Armstrong had been making experiments with rifled guns as far back as the date of the Crimean war of 1854-5. His system was first brought to the notice of the Duke of Newcastle (then Secretary of War) in December 1854, when six guns were ordered for trial. In July 1855 the first gun was delivered, a 3-pounder. In December 1856 it was bored up to a 5-pounder, and at the end of that month was officially reported on as having made remarkably good practice at 1,500 yards. In Jaunary 1857 a gun was ordered to correspond with the 9-pounder bronze smooth-bore field gun. This gun, an 18-pounder was reported ready on the 1st July 1857, but no trial took place till the 25th January 1858, when it was pitted against the 32-pounder S.B. gun. Lord Panmure the then Secretary of State spoke of it in these terms: "For all purposes of projection and accuracy of flight of the projectiles the experiments are conclusive." On the 24th September 1858, one 32-pounder of twenty six cwts., one 12-pounder of eight cwts., and one 6-pounder of three cwts. on this system were ordered for trial by a Special Committee. It reported on the 16th November 1858 that they recommended the "immediate introduction of guns rifled on Mr. Armstrong's principle, for special service in the field."

Mr. Armstrong having taken out a patent for his invention in ordnance, unreservedly assigned it by a deed of gift to the Government on the 15th January 1859. General Peel, the Secretary of War, in a debate in the House of Commons, expressed himself thus as to the new rifled gun: "The great advantages of this gun were its extreme lightness, the extent of its range and its accuracy. An Armstrong gun throwing a projectile of 18lbs. weighed one-third as much as the gun now in use discharging shot of that weight, the range of a 32lbs. gun (R.) fired with a charge of 5lbs. of powder, was a little more than five miles and a quarter (hear, hear); while the precision of the gun was still more extraordinary. The accuracy of the gun at 3,000 yards was as seven to one

compared with that of the common gun at 1,000 yards; while at 1,000 yards it would hit an object every time which was struck by the common gun only once in 57 times: therefore at equal distances the Armstrong gun was 57 times as accurate as our common artillery (hear): its destructive effects, also exceed anything which had hitherto been witnessed."

In another part of his speech the Right Hon'ble Gentleman stated that: "The gun submitted to the Government by Mr. Armstrong was breech-loading, rifled, wrought-iron gun of peculiar manufacture, throwing a projectile which answered as either solid or hollow shot, as shell or common case."

About the accuracy of this wonderful gun the *Athenæum* published the following anecdote, which will probably suggest to the reader that there must have been something sympathetic between the author of the narrative and the victim of the gun. "A few days ago we saw the range and accuracy of the new Armstrong gun tested in a way which demands a note. Cooling ourselves on the Essex coast near the artillery practising ground, we were asked to see the firing, and while this goes slowly and solemnly on, one of them (who?) spies a flight of geese far out to sea. 'There they light on yon sand-bank,' up go a dozen glasses. Yes; there they flicker in the sun, grey and white, mere specks in the blue sea air. Load the gun—load at the breech—poise—touch—bang! Boat off there to the sands! A signal tells the tale. The shot has struck the swarm!—a life is taken from the flight—and this at six miles seven furlongs (12,100 yards) from the mouth of the gun. A shot as well aimed from Primrose Hill should hit the ball on Greenwich Observatory, or if fired from Richmond Park should bring down a rider in Rotten Row."

In common fairness to the smooth-bore gun, we feel bound to cap the story by the *Athenæum's* penny-a-liner.

On the terrace of the Castle at Heidelberg may be seen a monument, much like a small tombstone, but not *in situ*. On its face it bears the following inscription, below which is a device representing two spheres almost in contact:

ANNO MDCLXXXI
DEN XXII JANVARI
VOM SCHLOSSEN AN DIESEN ORT
HAT WIEDER ALLER HOFFEN
AVS STVCKEN CHVR FVRST CARL
MIT KVGEL KVGEL TROFFEN.

This inscription in humble English prose reads thus:

In the year 1681 on the 22nd January firing cannon from the Castle at this spot, the Elector Charles, against all hope, struck ball with ball.

It is not known whereabouts the stone was found, but as there

are fortifications on the hill on the opposite side of the Neckar, one of the two guns is supposed to have been fired thence and the other from the Castle, resulting in this unparalleled shot.

But to return to the Armstrong gun; a description of the 12-pounder field gun will give an idea of the method of construction and loading at the breech.

The gun is a tube 6 feet long open at both ends. It is formed of (1) the tube proper, of (2) a breech and (3) a trunnion piece, of (4) a coil in front of (5) one immediately in rear of the trunnions, and of (6) one over the breech. These six pieces are worked up so as to form one solid piece. The maximum exterior diameter about the breech is $9\frac{3}{4}$ inches and at the muzzle 6 inches. Towards the breech end of the gun, a slot or hole is cut through the gun at right angles to the bore: the upper part of the slot being widened out to receive the "vent-piece," a movable but integral part of the gun. The end of the bore of the gun where it meets with the slot is furnished with a copper ring screwed fast into the gun, so that the end of the bore is of copper. The vent piece by which the end of the bore is closed, is a block of metal having a copper ring screwed on to its face. The breech ring has a chamfered edge forming part of a female cone, while the copper ring of the vent piece is a part of a male cone of the same form. Thus when the vent piece is pressed from behind, its ring exactly fits that of the breech and the bore is closed towards the breech. The vent piece further has a vent bored in it vertically and horizontally to fire the charge at pleasure. To keep the vent piece in its place and to secure a gas-tight joint between the two copper rings, the metal of the gun in prolongation of the bore has a female screw thread cut in it to receive the hollow cylindrical "breech-screw." The latter has a corresponding male thread and thus the breech screw can be worked in and out by a weighted lever. A single turn of the screw with a final tap or two with the weighted lever jams the head of the screw on the back of the vent piece, which again jams on the breech ring and thus completely closes the rear end of the bore. To load, after firing, the breech-screw is turned *sinistrorsum*; this releases the vent-piece, which is then taken out by the gunner. The eye if placed behind the centre of the breech-screw can see through past the vent-slot, into the powder and shot chamber and then through the rifled barrel out at the muzzle. The projectile is then entered into the hollow of the breech-screw and with the assistance of the rammer is sent home up to the commencement of the rifling; next the cartridge follows and is sent home up to the base of the projectile. Lastly, the vent-piece is dropped into the slot and allowed to find its own place, when the breech-screw is worked *dextrorsum*; and with the two regulation taps the vent-piece is secured in its position. A

friction-tube* is then dropped into the vent in the vent-piece and the gun is ready to be fired.

When the charge explodes the shell is driven through the rifled bore, receiving the print of both lands and grooves on its lead coating; a certain amount of lead is thus stripped off, which is vaporized by the great heat and forms that yellow smoke remarkable in firing Armstrong guns. This smoke is particularly inconvenient and unhealthy when fired in close situations such as 'tween decks on board ship or in casemates. It is due to peroxide of lead, a substance familiar to those who have melted lead at a high heat.

The advocates of the breech-loading system, speaking merely from theory, hold that the system of loading at the breech is such that the projectile must leave the bore absolutely "centered," *i.e.*, that the axis of the projectile shall invariably coincide with that of the bore of the gun. That this is not necessarily the case is proved by the fact that in shells which have been recovered after firing, the grooving in the lead-coating of the shell is nearly always deeper cut on one side of the shell than on the opposite side.

This breech-loading system and construction of gun was applied to various calibres of guns from the 6-pounder of $2\frac{1}{2}$ inches bore up to the 7-inch gun of 82 cwts.

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* The friction tube used for firing guns of all descriptions has superseded all other methods formerly in vogue, such as priming powder, quick-match or quill-tubes with port fire, &c. It is a thin copper tube fitting the vent easily: towards its upper end a short tube is affixed at right angles to the former. The long tube is filled with powder paste leaving a small central hole down the axis, a copper wire being passed through the paste for this purpose. Into the short tube is inserted a notched rubber having an eye at its outer end free of the tube. Above and below the notched part of the rubber are placed two pellets of friction powder: the short tube is then closed over the rubber and friction powder. The tube is then painted.

To fire the tube when in the vent, the hook of a lanyard is engaged in the eye of the rubber. By pulling the lanyard the rubber lights the friction powder; then the powder paste and finally the charge in the gun.

The use of quick-match formerly in use for firing mortars is not unattended with danger, as may be learnt from the following instance. The Ordnance Select Committee at Woolwich after the Sutlej Campaign, hearing of "camel guns," wished to try the 3-pounder gun firing from the back of a steady old troop horse. The gun being loaded with round shot, was primed by a foot or two of quick-match, as it is not easy to fire the gun otherwise in this extraordinary position. The gun being pointed in a safe direction, the match was lighted. The old horse smelliug something and hearing something fizzing, began to get uneasy and shift his position; the gun thus veered half way round the horizon. The portly President and Members threw themselves down flat on the ground: and at last the gun went off, throwing the old horse down on his side, without, it is believed, doing any further injury. The experiments were not proceeded with.

In shooting, the whole of these guns were very accurate and in the main up to the 40-pounder siege gun of 35 cwts. they were perhaps as efficient as breech-loading guns could well be. There was one source of accident, however, with these guns which recurred so frequently in the navy that they were much disliked. It was that the vent-piece was liable to be blown out of the slot and if the gunners stood very close they were more or less injured by the flash of the powder. If the serving was well and properly done, this accident could not occur ; but in the heat of action—aye even in the cool of a Shoeburyness field day—the vent-piece has been blown out. The vent-pieces are likewise sometimes fractured in firing.

The sole projectile for the gun was originally the "Segment Shell." The body was of cast-iron, without a bottom and with a large fuze-hole at the nose. "Segments" of cast-iron like the voussoirs or key stone of an arch were fitted into the shell, filling it, up save a central hole. The 12-pounder shell had seven layers of segments, seven in a layer : on the last layer was placed the cast-iron bottom. The shell in this form was placed nose down in a mould, being held in position by a cylinder or block of metal, extending from the fuze-hole to the bottom. The metal of the shell having been previously subjected to a series of chemical processes, lead was poured into the mould and adhered perfectly to the exterior of the cast-iron of the shell ; while it filled in the interstices between the segments and the shell, as well as those between the segments themselves and the cylindrical central block. On the block being withdrawn, there was left a cylindrical cavity from the fuze-hole to the bottom. The latter was secured in position by the lead-coating being allowed to extend somewhat over its surface. The shell was then put in the lathe and turned to guage. To fit this shell for firing there was put into it, (1)—a burster being a short bit of gaspipe closed at top and bottom by brass caps, having central holes. The burster was filled with powder, escape of the powder being prevented and access given to fire by small pieces of shalloon. Next came, (2)—a Percussion fuze much like that described in our last paper, and finally a time-fuze, made of pewter and of extremely elaborate description. The fuze composition instead of being a long vertical cylinder as in Boxer's time-fuze, was pressed into a circular channel in the metal of the fuze. It is no longer in the service and the reader may be spared any further description of it. This time-fuze closed the fuze hole of the shell. So complicated was the whole arrangement, that a foreign artillery officer alluding to it said it was "*Horologerie*" and the box which contained the shells and their apparatus, he described, as a "*un Pharmacie.*"

Now, the reader will recollect that in the breech-loading guns

there is no "windage,"—no empty space between gun and projectile—through which the powder-gas could pass over the shell and light the fuze. Hence a great complication arose. A double action was requisite, one to light the composition in the fuze and another to explode the shell at the proper moment. The result of these complications was that for the ten or eleven years the Armstrong breech-loading gun was in the service, these fuzes were a constant source of annoyance. When fresh from the Royal Laboratory at Woolwich they acted well, but when tried both by time and climate, it was found that, like Moselle wines, they would not keep.

The complete failure of the breech-loading 7-inch gun as a plate-breaker caused the first abandonment of the breech-loading system in England. But a grand step had been attained which will make the name of Armstrong well-nigh imperishable in the annals of artillery. It had been proved that guns could be built up of wrought-iron or wrought-iron and steel. The "coil" system gave great satisfaction when the iron of which the coils were made was not directly exposed to the powder.

Sir W. G. Armstrong's first gun had a steel barrel, but as the manufacture of steel had not attained the perfection it has now reached, the barrels of his subsequent guns were made like that of a fowling piece; *viz.*,—by twisting a bar of iron round a rod helically and then welding the iron together into a continuous tube. The difficulty of this operation was great, for the keen powder-gas at once detected any defective weld inside the bore, enlarged it and finally renderd the gun unserviceable from being dangerous to serve. Subsequently when the manufacture of large ingots of steel was better understood the barrels were of cast-steel, while the external supporting and binding coils were of wrought-iron.

Under this system an absolute and faultless weld in a coil was of no importance; with this proviso the manufacture is simple enough. The heating furnaces are of such a length as shall be capable of receiving a bar long enough to make one coil. At the mouth of the furnace is a windlass by which the coil is wound round the horizontal spindle of the machine, as it comes out red hot from the furnace. The coil is then knocked off the spindle and set end up in another furnace, and when it has attained a welding-heat it is taken out and placed under a heavy steam-hammer end up: a few taps weld the coil into a solid cylindrical mass with a hole down the axis.

When cool the coil is taken to a lathe and bored out to such a size as shall, when hot, fit the steel barrel at the place destined for it. After the steel barrel has been turned externally to its proper size it is toughened by being heated to a dull red and then plunged in a bath of oil. In this condition the coil is "shrunk" on to the barrel. This is effected by setting the latter muzzle downwards in

an upright position and causing a continuous jet of cold water to fill the bore and keep it cool in a subsequent operation. The breech coil, heated to a cherry-red, is dropped on to the barrel and driven down, if necessary, to the exact position it is eventually to occupy: the coil is then allowed to cool gradually and by a clever external application of heat it is made to "nip" at one end and then gradually to compress the steel barrel from that end towards the other, until it squeezes it all over. The force of compression thus got up is enormous and the joint between steel and iron perfect, and not to be disturbed by any amount of concussion in firing; the joint is all the more secure as the taper of the coil is such that the jar of firing jams the coil all the more tightly on the barrel. On this principle coil upon coil can be placed over a barrel to any extent that may be required, even when the dimensions attain the gigantic proportions of the "Woolwich Infant," whose breech-coil when finished measures 4 feet 8 inches in diameter and 7 feet 6 inches in length. We must now return from the description of the system of manufacture, which is equally applicable to guns on the muzzle-loading and breech-loading systems, to the Armstrong guns on the latter system.

The guns and projectile we have described looked so promising at the first glance that many were led to believe that something like finality in the smaller guns at any rate had been attained. But this was not to be. As early as 1862-3 defects made themselves seriously felt both in the guns, and in the projectile and fuzes. Those in the guns and fuzes have already been alluded to. The segment shell, however effective when burst correctly at fighting ranges was a poor substitute for the case shot of the smooth-bore guns. The latter must always retain their superiority in this species of fire owing to the large relative charge* used. A case shot for the breech loading guns was adopted, thus detracting from the advantage of unity of projectile which was one of the claims of the Armstrong breech loading system. Subsequently shrapnel shells burst by a time-fuze in the air were found to be more efficient than the segment shell burst either by a time-fuze in the air or by a percussion fuze on graze. Common shells again were found to be more efficient in destroying solid objects both by blow and bursting charge than the segment shells. The unity of projectile was utterly lost.

We must now go back a little in time:

Sir W. G. Armstrong's success soon brought forward competitors. Chief among the whole was Mr.—now Sir Joseph—Whitworth. He came forward with his hexagonal or polygonal rifling; patented on the 23rd April 1855, with regard to small arms. But here again the idea of a bore of this form was not new: for on

* The relative charge is the ratio of the weight of the powder to that of the projectile; upon this ratio mainly depends the amount of initial velocity.

the 25th October 1852, Sir I. K. Brunel entered into a correspondence with Mr. Westley Richards and finally on the 7th February 1853 wrote to ask him if he could make for him "a rifle barrel octagon shaped inside" whereas Mr. Whitworth only took up the subject of small arms in March 1854, and of ordnance in December 1855. It was, however, Sir Joseph Whitworth who developed the system and such merit as it possesses is undoubtedly due to him. If, instead of looking upon the gun as having an hexagonal bore with the points of the hexagon cut off, we say that the gun is first bored cylindrically and that subsequently six rifled grooves are cut in it, of the shape of a very much splayed out letter A cut off at the bar, we shall get a clear idea of the nature of the bore and be able to understand the *modus operandi* of the rifling on intelligible principles.*

The driving side of the groove is a little more than one-third of the "flat," and as there are six such flats symmetrically disposed round the axis, the projectile in its motions of translation and revolution is compelled to centre itself; in other words the centres of the cross section of the bore and projectile are identical. This very desirable result is obtained by the French field-gun system for the same reasons.

Sir Joseph Whitworth is one of our most accomplished mechanics, but it may be doubted whether he can ever be a gunner. He will not learn one or two simple things about gunnery which have been explained and impressed upon him by many of his well-wishers of the "cloth," and demonstrated practically before his eyes. One of those simple things is this, gunners insist above all things that their guns shall load easily and quickly—and no wonder, for lives depend often on their doing so: further, that there must be nothing about a gun or projectile, &c., liable to get out of order; for war is a rough business at best. But Sir Joseph, who is great at a mechanical fit, insists on such in his gun. A well-oiled projectile with a mechanical fit all over can be loaded from the muzzle, provided there is nothing but oil on the surface of the bore: but

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*In the Whitworth gun there are six grooves each occupying 41° of the circle, leaving each land or ungrooved portion of the bore, occupying 19° of the circle. The driving side is at an angle of 100° to the radius drawn to the origin of the driving side. The loading side is at an angle of 121°, in the gun and 120° in the projectile to the driving side. If we compare this construction with the French field gun system they will be found to be almost identical. In the latter the grooves occupy 35° and the lands 25°, the driving side is at an angle of 110° to the radius and the loading side at 90° to the driving side. In principle the two systems are practically identical; but in the Whitworth projectiles the ribs which fit the grooves are cast solid with the projectile and planed true afterwards. In the French system the zinc studs are "let in" to the projectile, the softer metal zinc being necessary so as not to wear out the bronze of the gun.

a few rounds soon covers it with a hard deposit from the powder which renders loading impossible; a much dreaded "jam" occurs and the projectile can neither be rammed home or got out of the bore: nothing can be done with a muzzle-loader but to pour powder down the vent until a sufficiency as been got in to blow the projectile out. This with a loaded shell fuzed is a very dangerous operation, for unless a considerable quantity of powder is got into the bore the shell will explode in unpleasant proximity to the gun and those who stand around it.* From a dead mechanical fit, Sir Joseph Whitworth as a concession eases off the loading side of what we have termed his grooves. The amount of windage thus conceded is about one-half that in the guns in the service. Further, his own experience as a mechanist tells him that if metal is to run against metal at a high speed, lubrication is necessary and accordingly a lubricating wad of wax and tallow is attached to the cartridge for that purpose. Similarly Sir W. G. Armstrong's breech-loading guns were, after a short experience, invariably fired with lubricators. These lubricators, however, were found to be a source of great annoyance, for though great ingenuity was displayed in their construction, they never gave satisfaction except on the practice ground or at home-stations. In hot climates the wax and tallow melted and after oozing out from their copper envelope, destroyed the powder in the cartridge. Before their adoption the Armstrong gun bore was sluiced with water after every few rounds, so that, except sweeping a chimney, no dirtier work could be undertaken than serving an Armstrong gun, involving a special dress to save the men's uniform. It was the necessity of lubrication which disgusted the only Power which adopted Whitworth's system for its Navy, *viz.*, Brazil. The officers of that service

* A gallant Colonel of artillery, in command of some heavy howitzers at the siege of Lucknow, was ordered to "lob" an 8-inch shell over some buildings into the midst of the enemy who were making themselves extremely disagreeable. He ascended to the top of a house just behind the howitzer to get a better view and from thence gave the word to load with common shell and directed the gunners to move the piece until it was "laid" in the proper direction; whether the officer in charge of the gun was inexperienced or merely bewildered is not known. But the gunner forgot to put in the charge of powder. In those days the method of firing a gun was by putting a small quantity of powder by hand on the vent-field, a good deal of which naturally fell through the vent into the bore, and firing what remained by a "port-fire." The howitzer thus primed was fired and lobbed its shell out just in front of the muzzle with the fuze alight! All present by instinct threw themselves on their faces and awaited the result in a state of mind which had better be described in the gallant Colonel's familiar but graphic words "There were we on our bellies and the infernal thing fizzing away close by. I was never in such a mortal funk in all my life. I wonder it did not turn my hair grey. Presently it went off with a fearful explosion, and we all got up, not a soul touched!"

reported officially that they preferred their old smooth-bores as their Whitworth guns were difficult to load and liable to have their projectiles "jammed" in loading. It is believed that they used no lubricators.

The Prussian, Russian and Belgian artilleries are armed with breech-loading field-guns on one and the same system, or so closely allied to each other as to admit of their being classified together. This system is of Prussian origin. The gun is formed of a block of cast steel, the cross-section at the breech being square while the remainder of the gun is a slowly tapering truncated cone. Without entering into any great detail, enough will be gathered of the method of loading at the breech by stating that the gun is bored through from end to end. That a breech slot is cut through the square block, forming the breech, not vertically as in the Armstrong gun, but horizontally. Into the slot fits a breech stopper, which when pulled out to a certain extent, regulated by a spring stop, causes a circular hole in the stopper to coincide with the end of the bore: the gun can then be loaded. The remainder of the stopper is composed of one fast and one loose inclined plane, the latter being actuated by a screw. On the stopper being pushed home in the gun and the screw being worked, the moveable inclined plane jams the stopper tight in the slot and thus the breech end of the bore is closed. The face of the stopper in this position has a copper plate forming the bottom of the bore and slightly overlapping the circle forming the end of the bore. This arrangement is said to give satisfactory results.

In the Russian guns in lieu of a copper facing, a soft steel plate in the stopper and an elastic expanding steel ring in the gun, the invention of Mr. Broadwell an American, are adopted to form the gas check and close the breech of the gun. The action of the plate and ring is precisely that of the leather Bramah ring in an hydraulic press, a happily devised combination by which the greater the pressure the tighter becomes the joint between plate and ring.

The Prussians during the war in 1870 fired nothing but common shells. For some years previously they had experimented with shrapnel shells with time-fuzes: but early in that year they decided against them, basing their decision chiefly upon the impossibility of timing their fuzes to burst the shells with satisfactory accuracy in action against troops in motion. They have, however, since learnt to regret that decision and have taken up the subject once more. The Russians and Belgians fire shrapnel shells with time-fuzes. We must now return to England.

The result of the complaints against the breech-loading Armstrong system and of the urgent demands of Mr. Whitworth and his friends was the nomination of a committee to make trial of the

rival systems. Two natures of guns were used, 12-pounders and 70-pounders. Sir W. G. Armstrong was represented by one muzzle-loading and one breech-loading gun, and Mr. Whitworth by one muzzle-loading gun of each of the above sizes. After experiments of long duration, costing about £30,000, a decision to the following effect was come to :—

"That the many-grooved system of rifling with its lead-coated projectile and complicated breech-loading arrangements entailing the use of tin cups* and lubricators, is far inferior, for the general purposes of war, to both the muzzle-loading systems, and has the disadvantage of being more expensive, both in original cost and ammunition."

Some few years after, this decision was backed by that of another committee of superior officers, who made no experiments but heard evidence, to the effect :—

"That the balance of advantages is in favour of muzzle-loading field-guns and that they should be manufactured hereafter."

This recommendation was not acceded to, but pressure coming on from India and the Admiralty, a committee was appointed which in 1869 brought forward the 9-pounder muzzle-loading rifle gun of eight cwts. as the field gun for India.

That gun the committee recommended should be made of bronze, as that metal was in stock in India and as its gun factory had full knowledge in working that metal. Fifty of these guns were cast at Woolwich and sent out to India, where they completely failed in consequence of large veins of tin—one of the two ingredients of bronze, the other being copper—being burnt out to such an extent as to render the guns dangerous to serve after having fired from 50 to 250 rounds ; while of three similar guns made at Cossipore 2 burst explosively, and the third failed in the same manner as the Woolwich guns.

This was a most astounding result after the experience obtained with the bronze guns tried at Shoeburyness, one of which fired upwards of 2,673 rounds and another 1,362 rounds " without their accuracy being seriously impaired."

The causes of this failure may be thus explained. The components of bronze are copper and tin in the ratio of 9 : 1. These metals can only form one single chemical compound in the ratio of 68 : 32 or to speak roughly as 2 : 1. This compound is very hard and brittle and useless for the manufacture of guns. In any other ratio these ingredients may be likened to oil and vinegar when shaken together in a vessel : they will only mix mechanically. Suppose copper and tin ingots in the ratio of 9 : 1 to be put into a furnace and cast together in a mould of large size. The casting

* Tin cups were used with the heavier breech-loading guns as a gas-check, to prevent escape of gas owing to wear of the joint at the breech.

will be heterogeneous: the tin will be found to run in veins through the mass: in short the ingredients have not been thoroughly mixed. If this operation be repeated a dozen times, at each casting the intermixture will be more complete.

If, however, the tensile force of the bronze be tested by a proper machine, it will be found that the metal of the last casting will in this respect be much inferior to that of the first few castings. Good bronze is found to be capable of withstanding a force of about 16 tons on the square inch.

A further point is this: the melting point of copper is about 2,000°F, while that of tin is 442°F. If, then, these two metals be not properly mixed, or in other words if the bronze be veined with tin, the reader will not be at a loss to understand how these veins will be burnt out into cavities, a small portion of melted metal being vaporized and expelled at the muzzle at each round.

If, on the other hand, the metal be thoroughly mixed by repeated fusions, the resisting force of the metal may have become so reduced, by repeated fusions and despite a small addition of new metal at each fusion, as to render it incapable of resisting the strain of the first explosion of the charge.

Now, it so happened that when the guns were about to be made at Woolwich for trial at Shoeburyness, there was not enough Indian gun metal in hand for the purpose. By Indian gun metal is meant metal that had been melted over and over again in that country, with a certain addition of new metal, in re-casting the guns as they become unserviceable with the batteries in the field. At Woolwich the stock of bronze guns was always enormous and until the Crimean war they had not been used in action since the battle of Waterloo. The number of batteries in existence on the peace-footing was very small* and the allowance of practice ammunition equally insignificant. These guns, then, were composed of metal which had not been melted more than two or three times. The character of the metal was soft, cutting like cheese; while that of the Indian metal was hard, the chip falling to pieces as it was cut off. The tensile strength of the former being considerably greater than the latter.

The accident—for accident it was—of the insufficiency of Indian gun metal in stock for casting the experimental guns resulted in the deficiency being made up of Woolwich metal; and thus was produced probably the happiest mean between fairly good mixture of the ingredients on the one hand and adequate strength on the other.

The 50 Woolwich guns which failed were cast, it is believed, from

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* It is said that seventeen guns could not be got together for the Duke of Wellington's funeral.

old guns with a small addition of new metal. The three Cossipore guns were purposely made of two sorts of metal. Two guns were of such metal as the smooth-bore guns had been made of for many years with one-tenth of new metal added ; those two guns burst in firing. The third gun was cast from very old English guns the metal of which was precisely the same in character as the Woolwich gun metal. This gun failed from tin veins being burnt out like the Woolwich guns. The alternative was thus fatal to bronze as a metal for rifled guns.

Still there remains to be noticed this point. The bursting of a bronze gun was deemed by the gunners of all nations to be next to impossible. Granted that the strain on a rifled gun is infinitely greater than on a smooth-bore, still the French, Austrians, Italians, Spaniards had adopted bronze rifled guns, and they had no guns burst. Why then did these two Cossipore guns burst ?

The answer is, that the Indian powder with which they were fired has proved, since the guns burst, to be of a most violent nature, approaching to detonating powder in the suddenness with which the charge is converted into gas. In the early part of these papers it was stated that the burning and consequent conversion into gas of gunpowder was not instantaneous, but very rapidly progressive. Were it instantaneous probably any ordinary gun and projectile would be shattered to atoms before either the one or the other had had time to move and " give " to the force, the gun in recoil and the projectile in propulsion. The metal or metals would be, as the French express it, taken by surprise. This quality of the Indian gunpowder is probably due to the wood of which the charcoal is made, but more particularly to the manner of carrying out the process by which the wood is converted into charcoal. This gunpowder, taken from the same batch as that by which the guns were burst, when tried in a steel gun of the same dimensions and construction as the bronze gun, has since been proved to exert a strain of no less than 18 tons on the square inch, or about double of that due to the English powder of the same nature. As good bronze is only capable of standing 16 tons on the square inch, we have a full explanation of the cause of the burst.

Bronze having failed, the gun is now made of a steel-barrel with a wrought iron jacket and trunnions. The gun in every particular is identical with the bronze gun, saving the *external* form which has been modified to suit the materials of which it is made.

The bore is three inches in diameter and 21 calibres in lengths. It is rifled with three centering grooves of the French form slightly modified. Its projectiles weigh close upon 9lbs, while the gun weighs eight cwts. or about 100 projectiles, and its initial velocity with a relative charge of one-fifth varies between 1,350 and 1,380 feet per

second. Its trajectory is remarkably flat. A good proof of this was obtained by pacing the tracks cut through long grass when firing at at an object 1,000 yards distance at Shoeburyness. The shell had mown its path through the grass, which was nowhere higher than two feet, for a distance of between 40 and 50 yards.

The accuracy and uniformity of its shooting are remarkable. At 2° of elevation the mean range is 1176 yards, the mean difference of range of a number of shots is 14 yards and the mean observed deflection is one yard. At 3° of elevation the mean range is 1,552 yards; the mean difference of range is 17 yards; and the mean observed deflection is 2¾ yards; finally at 7° of elevation the mean range is 2,665 yards; the mean difference of range is 19 yards and the mean observed deflection is 14 yards.

Now, the reader must be reminded that these are the results of experimental practice. However strong the wind may blow across the range, the gun is invariably directed at the same point. The shell in traversing a distance of 2,665 yards or more than a mile and a half took nine seconds in its flight, during which time the wind blew it out of its straight course: this, therefore, was no fault of the gun. Had it been a dead calm the shooting as regards deflection would certainly have been better.

To eliminate the effect of wind we must calculate the average lee way due to it; and then refer the position of each shot to the mean position, not of the object aimed at, but of the average shot and take the average deviation from it. We shall then get what is termed the "mean deduced deflection." This system is used in comparing the accuracy of practice of all guns: it further eliminates the permanent deflection or drift due to the direction of the rifling, mentioned in a note in our first paper.

The mean deduced deflections, then, of this gun at ranges of 1,176 1,552 and 2,665 yards are found respectively, half a yard, three-fourths of a yard, and three-fourths of a yard. The above figures will give the reader a true idea of the accuracy of the gun, independent of wind, &c.: and it may be added that at the date of this practice it had never, it is believed, been equalled by any field-gun in England or elsewhere. As to rapidity of firing, 50 rounds have been fired in seven minutes: and as to rapidity combined with accuracy, 50 rounds were fired in thirteen minutes, making 27 hits in a nine foot target at 1,000 yards. Further 140 rounds were fired from one gun without stopping, at the rate of three rounds in a minute—that is, continuously for three-quarters of an hour. The metal became so hot as to boil water.

The shrapnel shell fired at a column of troops, represented by targets 54 feet wide by 9 feet high, in four ranks 20 yards apart, made 48 hits *through* 2-inch boards at 1,200 yards, 40 *through* at 1,600 yards and 10 *through* at 2,000 yards: when it is stated that

the shell contains 63 bullets, it will be conceded that a very large proportion of them "have their billet."

However succesful this gun, it is wise to recollect always the doctrine contained in the following distich :—

> Croire tout découvert est une erreur profonde,
> C'est prendre l'horizon pour les bornes du monde.
>
> *Lemierre.*

The advantage gained by this gun over previously existing guns in shooting was mainly due to an increase of the powder charge. The projectile weighs 9lbs. and the charge is 1¾lbs. or a relative charge of about one-fifth. Its predecessor, the Armstrong 12-pounder breech-loading gun fired a projectile of 12lbs. with a charge of 1½lbs., the relative charge being thus one-eighth. If we wish again to improve on the 9-pounder gun, we must increase the charge still further. We might try and advance to a relative charge of one-fourth or one-third as was formerly used in the smooth-bore guns. This has been tried quite lately with the result of an increased velocity; the former giving an initial velocity of 1,495 feet per second, and the latter 1,531 feet. This is still far short of what might be obtained. For a rifling of 1 turn in 30 calibres with a velocity of between 1,350 and 1,400 feet per second, giving, as previously stated, 180 revolutions persecond, amply suffices to keep the projectiles nose foremost; anything beyond this is mere loss of force. Thus with 1,530 feet per second 180 turns would be made by a twist of rifling of 1 in 34 calibres and with a velocity of 1,700 feet, the same result would be obtained by a twist of 1 in 38 calibres.

But there is a further circumstance with the muzzle-loading gun which hinders the attainment of an increase of velocity at all proportionate to the increase of charge. It is the great length occupied by the charge when rammed home in the gun. With the Martini Henry breech-loading rifle this difficulty was easily surmounted by giving the powder-chamber a larger diameter and thus increasing its capacity without lengthening it. This presumes an adequate strength of metal about the powder-chamber to resist the increased strain. This device is exactly that which the Prussians have adapted in the construction of a new piece with which they are experimenting. If we are to believe the newspaper accounts, the following is a description of the piece :—

"The new gun weighs, we believe, a little more than our 9-pounder, namely, about 8½ cwts., but they propose to fire from it a shell of 11lbs., with a charge of over 3lbs. of powder. They thus obtain the enormous velocity at the muzzle of 1,700 feet per second, while our 9-pounder starts with a velocity of something under 1,400 feet."*

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* *Pall Mall Budget*, 24th January 1873.

The great practical difficulty of using such high charges is dealing with the recoil; for when the recoil is great, it is a serious hindrance to rapidity of fire and running the gun up into position after every round when firing for a long time is a most exhausting labour to the gunners. Various systems of breaks are under trial in England to reduce the recoil by getting up great friction: but none have hitherto been successful.

The French are experimenting with field-guns with the same idea as a starting point. We will now proceed to consider, as dispassionately as a strong conviction on one side will admit of, the respective merits of the breech-loading and the muzzle-loading system of guns.

The breech-loading system involves the ability to close and open the breech end of the gun at pleasure. Be the method what it may, there must be a joint between the moveable and the immoveable part of the breech. All joints, angles and so forth, inside the bore of a gun are at once the object of attack by the powder-gas: thus, what originally was a good joint becomes more or less, sooner or later, impaired. Screws, inclined planes, &c., are apt to get bent or injured by the rude shocks of firing and the mechanism jams or will not act freely. In this point of view every one must concede that the advantage lies with the muzzle-loading gun, where the end and sides of the bore are enclosed in a solid mass of metal. The only difference that can arise between any two persons in the matter is as to the extent and importance of the amount of injury and inconvenience inherent to the breech-loading system.

Again the reader knows that the "obturation" of the bore is complete in the breech-loading gun in firing; or in more familiar but technical language, the gun has no windage. For a time-fuze, which we have shown to be so desirable in firing shrapnel shells, a detonating arrangement is necessary for lighting the fuze and this at least is a complication. On the other hand, in very heavy guns whose business is armour piercing, no fuze is required; but the lead-coating of the breech-loading projectile to a certain extent impedes it in penetration, since force is lost in skinning off the lead-coating as the projectile makes its way through the iron. If on the one hand this be disadvantageous to the projectile, on the other the windage is most disadvantageous to the durability of the muzzle-loading gun firing large charges. The gas rushes over the projectile like the flame of a tremendous blow-pipe and eats away the steel of the gun just above and in front of the projectile. If an impression or "squeeze" of the part of a gun, which has fired a considerable number of rounds, is taken in gutta-percha, its appearance is that of the bark of an old elm tree. The cause of this "erosion" is partly mechanical, partly chemical, and we are inclined to think chiefly the latter.

It will be recollected that one of the ingredients of gunpowder is sulphur, and every schoolboy has probably tried the experiment of rubbing the end of a roll of sulphur against a red-hot poker by which a sulphate of iron is formed: the sulphate pours off in a liquid form and thus wastes away the poker. This result is proved to take place when gunpowder is exploded inside a short closed iron gun-barrel: for when the residuum is chemically analyzed, among other substances is found sulphate of iron. We hold that this is the main cause of the erosion of the bores of muzzle-loading guns. It takes place to a much smaller extent in breech-loading guns, due to the non-existence of the blow-pipe action above alluded to. In field-guns, the charges being small, the erosion is insignificant, but it assuredly is the greatest disadvantage attendant upon the muzzle-loading system for large guns. Various methods have been tried for its prevention, but hitherto none have been successful. We are thus led to the conclusion, that for small guns the existence of windage in the muzzle-loading gun is an advantage not possessed by the breech-loading gun: and that for heavy guns the windage is highly disadvantageous and thus the breech-loading system in this respect is preferable to the muzzle-loading system.

Further, for plate-breaking guns, the moveable breech-closing apparatus must perforce be ponderous. The strain on it is enormous: it is consequently apt to jam or work with difficulty. On this point it is clear the advantage lies with the muzzle-loading system.

Once more, the breech-loading system has the great advantage whether in a turret, broadside, casemate or siege-battery, that the recoil of the gun on its carriage may be mechanically checked at such a distance as shall be convenient and that it is not requisite to bring the muzzle of the piece inside the defensive mass through which it fires, to enable the gunner to load. The gun can consequently be made much longer, and therefore more efficient than a muzzle-loading gun of the same calibre. The longer breech-loading gun is more efficient, since the projectile is by so much longer under the influence of the expansive gas. Late English papers, however, give a description of a method of loading a muzzle-loading gun by hydraulic power, the invention of Sir W. Armstrong, which bids fair to neutralize the advantages the breech-loading gun has in loading in confined situations. In a siege-battery, however, the breech-loading gun may be fired over the top of the parapet, the breech of the gun being at such a height that it may be loaded by the gunners when almost completely protected from the enemy's fire. This cannot be effected with the muzzle-loading gun; and therefore the advantage lies again with the breech-loading gun. As regards rapidity of fire, the muzzle-loading gun has been repeatedly proved to be the quicker with field-

guns; with heavy guns no comparison has been made so far as we are aware between the two systems. The rapidity of fire of heavy guns on the muzzle-loading system leaves, however, nothing to be desired.

We must leave our readers to strike the balance of advantages between the two systems, without pronouncing our opinion either one way or the other. The great continental powers of Europe have adopted the breech-loading system, while England nearly alone has changed from the breech-loading to the muzzle-loading system.

We will now close these papers, with the expression of a hope that we may have in some remote degree fulfilled the task we undertook of giving the "general reader" some elementary ideas upon the subject of Rifled Artillery.

HENRY H. MAXWELL,
Colonel, Royal Artillery.

ART. V.—THE PANJAB UNIVERSITY COLLEGE.

THE movement which has given the rudimentary form of a University to the Panjáb is in some sense an episode of the war of Anglicists and Orientalists,—which can never be decided so long as the principles of education in India are discussed—but is more particularly due to the characteristic activity and ambition of Panjáb officials. For some years after the annexation, the Panjáb, owing to its great political importance, attracted the ablest and most enterprising of the servants of Government; and it is not surprising that such men, unfettered by unwelcome regulations and by the still more unwelcome lessons of experience, attempted to make their province a model of progress and enlightenment. Here, if anywhere, the dreams of "India as it might be" should be realised. There was much that was good, and much that was otherwise, in these aspirations. The assumption of superiority to ordinary mortals, which sat well enough on the Lawrences and Edwardes' and other familiar names of which any country might be proud, was usurped by smaller men with results disastrous to themselves and to the credit of their colleagues. It is not given to every one to conjure with Nicholson's wand.

However, ten years ago, great efforts were being made for the moral and intellectual regeneration of the Panjáb. Conferences were held to inaugurate social reforms, a vast scheme of female education was elaborated, a School of Art and Design was all but founded; and the movement culminated in an Exhibition of Industry, upon the plan of those held in Europe, which came off in the year 1864 with great *éclat* and success. About this time Dr. Leitner arrived at Lahore, having been appointed Principal of the newly established Government College.

Dr. Leitner, although a stranger in India, had spent many years in Muhammadan countries, and nowhere could he have found a fitter field for his enterprising and versatile genius than in the society into which he was now thrown. Of the chief promoters of the Panjáb University scheme it may be said broadly, that Sir Donald Macleod contributed the ideas, Mr. Aitchison the form, and Dr. Leitner the energy; but the ideas and the form of the projected University were, to a certain extent, the common property of all the supporters, while the mainspring of the movement was Dr. Leitner alone.

The first thing which Dr. Leitner did to carry out the object which he had in view was to establish a kind of literary club at Lahore, consisting of European and Native gentlemen, called the Anjuman-i-Panjáb.

The Anjuman was founded in January, 1865, and at the first meeting the object of the Society was declared to be twofold :—

I.—The revival of ancient oriental learning.

II.—The diffusion of useful knowledge among all classes of the native community through the medium of the vernaculars.

To attain the end in view, the members were divided into a number of Committees. There were Committees for Medicine, Finance, Business, Education, with Sub-Committees of Examiners in Arabic, Sanskrit, Persian, Hindi, Urdu, and Pushtu. A Free Public Library was established, containing 1431 volumes, of which 798 were the property of the Society and the rest were lent by members, and a Free Public Reading-room supplied with newspapers and Reviews. During the year 1865, 40 papers were read at the general meetings of the Society. Among the subjects chosen for discussion were the following—The laws of health, the authoritative control of morality, the rise, decline and revival of learning among the Arabs and Indians, the introduction of machinery and foreign arts into India, the evils of the educational system of the Panjáb, polygamy, the purdah system, cotton-presses, agriculture, the improvement of the vernaculars.

But the chief business of the Society was the foundation of "the Oriental University," as it was then called ; and the spirit in which the work was undertaken will appear from an address delivered by Dr. Leitner in the month of August. The address is too long to give in full, but the pith of it will be found in the following summary :—

"Ra-ises, the subject which I have to bring to your notice "to-day is of the greatest importance to yourselves, the Govern- "ment, and the people of this country. It is a great honour "to me that you have favoured me with your presence at this "meeting, which I hope will be in the annals of this country "an illustrious and noteworthy gathering. Give your best at- "tention, and be sure that you are giving it to one who is "not only a friend of the people of India, but who is also "deeply anxious to be accepted into the friendship of every one "of you. * * * * * * *

"Our Government is founded on the most liberal principles. "It not only tolerates every shade of opinion among its subjects, "but it considers all its subjects equal. It will admit any one "to the very highest employments, if he be competent for them "without distinction of race and creed. The people of England, "the Parliament of England, the Government of India are an- "xious to admit all to the same privileges as all are interested by "the same loyalty to the same Queen.

"Why is this ? because among all the nations of the world "England has alone profited by the lessons of past history, and

" her greatness is due to understanding that the welfare of ever
" *one* subject is necessary to the welfare of the whole country.

" Knowledge is power everywhere, but particularly in India. Yo
" are looked upon as the leaders of your several nations. It is there
" fore necessary that you should lead the van of education and pro
" gress. Government can only shew the way, but it is the peopl
" who are to walk in it. The object of Governmental instructio
" is to stimulate *private* educational competition. Let me quot
" from the Despatch of the Secretary of State for India. Is it no
" clear to you that we ought to establish what I hope will b
" established by this meeting, *The People's Department of Publi*
" *Instruction*, which will be established by you, presided over b
" you, encouraged by you, and supported and perfected under you
" sole care and responsibility. There is no opportunity like the
" present for doing this. Under that best of men and scholars ou
" honored and beloved Lieutenant-Governor, Mr. Donald Macleod
" who loves the people, wishes to perpetuate its ancient sacred lan-
" guages, to perfect its present vernaculars, and to introduce new
" knowledge without detriment to old knowledge, we have an oppor-
" tunity such as Providence rarely gives to any people. Nobles! i
" under such a man you do not raise the condition of the inhabitants
" of this country, you may never have another such opportunity.

" The Lieutenant-Governor's last circular shews that he ha
" two great objects :—

" *The revival of ancient oriental learning.*

" *The perfection of the vernaculars of this country.*

" We do not want people merely to know a little English, but
" to respect their parents, their Ra-ises, their priests, and their
" elders, to be honest, and to be able to manage the work that
" Government may entrust them with. Therefore I again say that
" the only thing is to establish, *The people's own Department of*
" *Public Instruction.*

" The first thing that the Department will do will be to estab-
" lish an university at Lahore for the Panjáb. That university
" should have for its patron, the Lieutenant-Governor, and for
" its Governors the Native Rajahs of the Panjáb, and for its
" Senate the nobles of Lahore. What will distinguish it from the
" official department will be its complete avowal of the principle
" of *absolute liberty in giving and receiving instruction.* Any
" person of ability may teach under our auspices. Any person
" may be taught, for as long or as short a time as he may like
" Any person may be admitted to the examinations, and if compe-
" tent may receive degrees and titles. In short, if this country is
" ever to be what we wish it to be, there must in this our
" educational measure be
" ENCOURAGEMENT EVERYWHERE AND RESTRICTION NOWHERE."

"Unless the *voluntary principle* surrounded by certain safe-
"guards is the basis of our movement, the nation will remain in
"its childhood. Government will always doubt that the people
"is progressing as long as we do not shew that we are men, not
"children. Therefore, we must act for ourselves, and gain by
"overwhelming merit the position to which we aspire. Then
"the people of England will bountifully bestow its marks of
"appreciation on a deserving people.

"Let us work together without being jealous of each other's
"goodness, but for one common object.

"On me you can always depend: here or in England, in public
"or private, I shall in my humble way always serve your cause.

"But if you act in concert for a great good and noble common
"object with implicit reliance on yourselves and each other, you
"will succeed.

"Praise will be given to *all* where *all* support and praise each
"other, and friendship will sanctify the bonds which have been
"drawn together by a necessity of common action."

This spirited appeal had the desired effect. Dr. Leitner's proposals were adopted by the Ra-ises "unanimously and with unparalleled enthusiasm." A few weeks later he submitted his "rough draft of a scheme for the establishment of an Oriental University for Upper India." It will be seen that considerable progress had been made in the interval.

The Oriental University.

Founded in the year 186— by the Raeeses of Lahore, the Rajahs of————and————.

Patron:

Her Most Gracious Majesty the Queen.

Vice Patron:

His Excellency the Viceroy of India.

Chancellor:

His Honour the Lieutenant-Governor of the Panjáb.

Official Governors:

The Maharajah of Kashmir.
The Rajah of Kapurthala.
Ditto ditto (not yet determined.)

Life Governors:

The Founders of the University.

The Council :

The Chancellor, Vice Chancellor, Official Governors, Life Governors, and other men of rank or great literary eminence who may be elected into it.

The Senate

Is a body composed of the representatives of the several Literary Committees.

The Literary Committees

Supervise the different Examining Boards and fall into two main divisions :—

A.—The Committees for Vernacular Literature

B.—Ditto ditto for Oriental Classical Literature.

The draft further sketched the details of the scheme, arranging for the bestowal of *khiluts* and titles of honour to those who might pass the examinations, and the establishment of colleges in every large city of Upper India upon the principles advocated by Dr. Leitner.

Shortly afterwards a European Committee of Support was formed, of which Mr. Lepel Griffin was Secretary and Mr. Aitchison and Mr. A. Brandreth were among the members. The organisation of the Oriental University was prosecuted with undiminished activity and an address from the Ra-ises of Lahore and Amritsar elicited from Sir Donald Macleod an extremely interesting and valuable expression of opinion dated the 2nd February 1866, which concludes as it were, the first act of the drama.

Sir Donald Macleod declared his great satisfaction with the progress which had already been made towards the establishment of a university, and paid a well-merited compliment to Dr. Leitner for his share in the work. He reminded the Ra-ises that in 1835, under the auspices of Lord William Bentinck, then Governor-General of India, the rules and principles to be followed by Government and its officers in the work of education were placed on a new basis. Among the promoters of the new system were to be found the well-known names of Macaulay, Trevelyan, and Duff. Dissatisfaction was justly felt and avowed by them at the meagre results which had previously been attained by efforts made to convey instruction to the people through the languages of the country, and it was determined that henceforth the English language should be chiefly relied on as the means of imparting the knowledge of the West.

" Up to that time no serious effort had been made to employ " those languages as a medium for imparting the knowledge which " European nations most value, so that it is no matter for sur- " prise, that such dissatisfaction should have been felt. But there

"were, at the time, not a few who were of opinion, that the scheme "of education then determined upon was too exclusive as well as "practically ungenerous from omitting and decrying all that you "value the most. And, although great progress has undoubtedly "been made since then, although many distinguished and en- "lightened scholars have been raised from amongst your country- "men, and the desire for education has greatly increased on every "hand, there are now a still larger number amongst us, and I must "avow myself to be one of this number, who consider that the "results which have been attained shew that opinion to have been "correct, inasmuch as, notwithstanding some brilliant exceptions, "the great bulk of our scholars never attain to more than a very "superficial knowleuge, either of English, or of the subjects "they study in that language, whilst the mental training imparted "is, as a general rule, of a purely imitative character, ill-cal- "culated to raise the nation to habits of vigorous or independent "thought."

It was doubtless hoped by the eminent men who inaugurated the revised arrangements, that a vernacular literature of a superior order would result indirectly from the cultivation of the arts and sciences of other lands; but hitherto little or no progress had been made to the attainment of this end. In Sir Donald Macleod's opinion nothing like a vigorous, original or copious vernacular literature was likely to be produced within our generation unless very special efforts were made for securing that end, while the system now in force appeared to him but ill adapted to such a purpose. Vigorous mental training was little aimed at, and the youths who attended our schools and colleges seldom or never belonged to those classes which are used to devote themselves to the cause of learning. In consequence the most cultivated minds of either race have remained apart, each being unable to understand or appreciate the other. This was much to be lamented, and where a different policy had been pursued Sir Donald Macleod had himself witnessed most remarkable and gratifying results. He referred to the labours of Sir Lancelot Wilkinson in Bhopal and of Dr. Ballantyne at Benares who had collected around them a body of Pandits who studied with the keenest interest what they considered "the new philosophy." The Arabic, Persian, and other oriental languages might be employed in the same spirit and with the same results. The efforts of individuals, however, could be of little avail unless they were carried on by others of a like mind. Such a fate had befallen the labours of both those remarkable men; but with the Raíses of Lahore and Amritsar the case was different, and it was in their power, if they acted prudently and wisely, to give permanence and solidity to the measures on which they might now resolve.

But they should not conceal from themselves that their consultations must be carried on with great care and deliberation. They should guard against even the appearance of being too pretentious, yet should bear in mind that they had a serious and great work before them, and not rest content with merely evincing enthusiasm themselves or exciting it in others. They should not allow the spirit of earnestness and hopefulness with which they had entered on this undertaking to diminish, but should proceed cautiously and prudently, and in humble trust for guidance on that power who rules all our destinies.

We may now pass on to the minutes and correspondence immediately connected with the establishment of the Panjáb University College as at present constituted.

A movement of a similar character to that in the Panjáb had been started by Sayyid Ahmad, and had resulted in the foundation of the Aligarh Institute and the British India Association of the North-West Provinces. In a petition to the Viceroy, dated 1st August 1867, the Association asserted that the present system of using English as the medium of instruction in the universities of India was ill-calculated to raise the intellectual condition of the people, and desired that the science of the West should be taught in the vernacular. They admitted that at present there were not books sufficient for the purpose, but they thought that the production of a learned vernacular literature was not difficult.

To this memorial the Government of India replied that the importance of the vernacular languages, as a medium for conveying instruction to the people was prominently recognised in the Education Despatch of 1854; but a broad distinction was drawn between the vernacular languages as the necessary and only medium of instruction of a popular kind, and the English language as an essential requisite for education of a high order. But between these two limits of popular education on the one hand and education of a high order on the other, there were many degrees of knowledge for the communication of which through the medium of the vernacular or English languages no specific rules could be laid down. It had hitherto, as observed in the Despatch, been necessary, owing to the want of translations or adaptations of European works in the vernacular languages of the East, for those who desired a liberal education to begin by the mastery of the English language; but this necessity was not regarded as one likely to be of permanent duration, and as the vernacular literature of India became gradually enriched by the compositions of men whose minds had been imbued with the spirit of European advancement, European knowledge would gradually be placed within the reach of all classes of the people. As regarded the specific proposals of the British Indian Association, the

Governor-General in Council thought it must be admitted that the vernaculars of the country did not as yet afford the materials for a university course of study; but it was impossible for Government to undertake the whole work of education, and all efforts made by Societies or individuals to further the common object would be cordially recognised and assisted.

This correspondence between the Aligarh Society and the Government of India became the subject of several minutes, written at the request of the Lieutenant-Governor of the Panjáb, who desired to receive such opinions and suggestions as the occasion might appear to call for. Among the suggestions of the officers of the Panjáb Education Department, which have since been adopted, are the abolition of Text-books for the Entrance Examination of the Calcutta University, and the recognition of Persian as a classical language. It was also generally agreed by them that the vernacular should be used as far as possible for instruction in subjects of useful knowledge; and a proposal was made, which has also been advocated by Sir William Muir, to allow the B.A. Degree to students who after passing the First Examination in Arts with English, might take up the Honor course in science or oriental literature.

The Anjuman of Lahore responded tardily to the Lieutenant-Governor's request for an expression of opinion. The Aligarh Society had hazarded some inaccurate remarks upon their scheme for an Oriental University. In the words of the memorial "The "aims and objects of this (Oriental University) are excellent, "but those of the university which we solicit for these provinces "are superior. The first has for its scope the revival and culture "of oriental languages; the latter seeks to be the means of "diffusing throughout the country European learning and civilisa-"tion." Dr. Leitner, writing on behalf of the Anjuman of which he was President, referred to all that had been done in the Panjáb since 1865. "It had met objection after objection in various ways "and saw at last its efforts rewarded by a general concurrence "in this and other provinces in the principles which it had laid "down as those on which alone a sound education could be "based in this country. It saw itself after all called upon to give "an opinion on *one* point of detail in its own scheme to which the "British Indian Association had given support and prominence. "Confident of the acceptation by His Honour of the necessity of "enriching the vernaculars from oriental classical languages, it "merely endeavoured to shew that one vernacular alone, as suggest-"ed by the British Indian Association, could not suffice for the "whole of India; and Babu Navina Chandra had submitted a paper "which meeting with general assent endeavoured to establish "claims in favour of Hindi. The Anjuman then, as always, would "not commit itself either to any *one* vernacular or to *all* the

"vernaculars without those classical sources which alone can
"develop them. The Anjuman could therefore only reiterate its
"adherence to the original principles which it had consistently
"maintained. But in the opinion of the members, Lahore was
"entitled to be the seat of the university as the capital of the
" province and the place where the movement had been started.
"It was always understood that the university would be estab-
" lished at Lahore. On this understanding subscriptions
" were asked for and received. Lahore alone contained the
" elements for the formation of a Council. Amalgamation
" with the North-West Provinces was undesirable because there
"was sufficient scope in the Panjáb for a separate university,
"and because there was a radical difference in principles and
"aims between the Panjáb movement and that of the North-
"West."

It is necessary to enter into the details of these disagreements in order to shew how impossible it was at that time to establish a university for the whole of Northern India. The minute of the Anjumán of Dehli which bears marks of the vigorous mind of the late Mr. Willmot indicates that it was equally difficult for Dehli to amalgamate cordially with Lahore.

"The Dehli Society hailed with satisfaction the announcement
"that a new university was in contemplation rather than modi-
"fications in the university of Calcutta, and that it was not
"intended to substitute the study of the oriental languages for
" that of English, but to encourage the acquirement and exhibition
" of the earlier elements of science by means of the vernaculars,
" rather than by means of the English language. The functions
" of the new university were understood to be three :—*viz.*,
" Examination, Literary encouragement and supervision, Tuition
" by Professors. The first function could be exercised more
" easily and thoroughly by a university at Lahore than at Dehli.
" For the former city was not only more central than the latter,
" but from being the seat of Government and of the Chief Court
" afforded facilities for the construction and working of an execu-
"tive Committee. But, on the other hand, as to the literary
" function Dehli was far better adapted for the establishment
" and operations of a Literary Committee. The mother city of
" the Urdu language, in which that tongue is still spoken
" and written with far greater purity than in any city in
" Hindustan, would naturally, for many years to come, produce
" a very great proportion of such scholars as might be fit to
" devote the labour of their lives to the transfusion of
" European ideas and civilization into the vernacular. More-
" over a Literary Committee at Lahore, which must practically
" consist of residents, would be likely to encourage the production

"of works, which oriental scholars would reject for impurity of "language or ungracefulness of style. But it was to the third "function, that of teaching, that the most serious objections were "to be raised if the *locale* of the university were to be Lahore. "It was proposed that the university should take up tuition where "the colleges left it. But the students of Dehli would never con- "sent to complete their education by a residence of some years at "Lahore, and as the highest order of instruction would not be "imparted in the Dehli College, the best material to be found in "Hindustan for the required purpose would be thrown away. Thus "with the men at Dehli and the instruction at Lahore, with, so to "speak, the stock in one place and the graft in another, what fruit "could be expected or rather what tree?"

"In the opinion of the Dehli Society if the university were to "be at Lahore, its literary and teaching functions should be aban- "doned, the funds being generally appropriated to improve "the existing educational institution. But it should be remem- "bered that a university at Dehli could immediately exercise its "examining and literary functions for the Panjáb and North-West "Provinces conjoined, and might hereafter exercise a teaching "(professorial) function, neither of which objects would be attained "at Lahore."

The scheme of the Panjáb Government as it was first presented to the Government of India, was based upon one put forth in a memorandum by Mr. Aitchison before these final discussions in the Anjumans of Dehli and Lahore had taken place. Mr. Aitchison's minute is a landmark, and owing to its importance will be quoted here *verbatim* with the omission of details. He wrote as follows :—"In any discussion of the question of the diffu- "sion of European literature and science through the medium of the "vernacular languages of India, it would be wrong to start with "any other assumption than that the vernaculars of the country "do not as yet afford the materials for conveying instruction of a "high order. Not only do scientific works not exist in any num- "ber, even in translation, but the vernacular language, by which, "for Upper India, I must be understood as meaning Urdu, is in "its present imperfect state incapable of correctly expressing the "results of European science, far less the processes and methods "of European thought. For many years to come a knowledge of "English will be indispensable to any native of India who is de- "sirous of prosecuting high literary and scientific studies. The "number of those, therefore, who can hope to be imbued with the "spirit of European thought must necessarily be few, and found "chiefly among the wealthier classes of native society. But even "if they were far more numerous than we can expect them to be, "they must, unless the vernacular language be itself enriched

"and largely developed, for ever remain as widely separated in "thought and knowledge from the masses of their countrymen "as are the English themselves in India.

"Nor must we conceal from ourselves that the knowledge of "English obtainable in Upper India, and I fear that the same may "be said of India generally, except, perhaps, in the presidency "towns, is practically useless as a means of conveying even to the "students any adequate knowledge of European literature and "science. The defects of the system which has been thrust upon "us by the Calcutta University are so obvious, and so universally "admitted in this part of the country, as to require no discussion. "Not only do the English students universally display all the "faults usually attaching to a superficial English education, but I "think it beyond dispute that, with rare exceptions, they will be "found to have little or no command over their mother tongue."

Mr. Aitchison then referred to the refusal of the Calcutta University to modify their course, a decision which he thought was not to be regretted. He continued: "The general idea seems to be that "a university should be established at Delhi for the North-West "Provinces, and Panjáb combined. If there be only one university "for both Provinces, Dehli is no doubt the best place for it. But "now that the idea of a separation from Calcutta has been started, "I should hope to see the North-West Provinces and the Panjáb "have each their own university, the latter at Lahore. The extent "of country to be provided for, the peculiarities of the Panjáb in the "dialects, habits, and customs of its population, the existence of a "valuable museum and Medical College at Lahore, and the "earnest efforts that have of late years been made for the estab-"lishment of an Oriental University there, entitle the people of "the Panjáb to consideration.

"But whether there is one university or two, I hope we "shall avoid the error of modelling the University after that "of Calcutta, and constituting it a mere examining body.

"The main object of a university is not so much to test what "students know as to guide them in their studies and train them "in proper methods of learning. None of our present colleges "answer the proper purposes of a university; and instead of "merely examining students as to the results of their college "reading, we should take them up where our colleges leave them, "and by subjecting them then to the personal influence of elevated "enthusiastic scientific men at the time when their minds are "most plastic, infuse into them something of the Western love "of learning for its own sake, and guide them in the true method "of gratifying it. A university that shall be a mere examining "body is under the most favourable circumstances an anomaly, "and is quite unsuited to the requirements of this country where

"scientific method in study is almost unknown. I hope, therefore "we shall have a university modelled rather after those of "Scotland and Germany than after that of London ; a university "at which, if actual residence and study be not by rule compul- "sory, they shall at least in practice be found expedient from "the rigid exaction of qualifications for a degree, which can be "acquired only exceptionally out of the university."

Mr. Aitchison then sketches a plan of a superior University College with an Entrance standard which should require considerable attainments in Arabic or Sanskrit. There would be scholars, Professors, and Fellows of whom some should be bound to study in a European university. For degrees three subjects should be studied, of which either Arabic or Sanskrit and English should be compulsory, and the third subject optional. The Fellows who had studied in Europe should, on their return to India, be attached to the University, teaching and communicating the result of their study in Urdu and not in English. "It is of course impossible," he added, "to create or enrich a language by direct effort, but we "can do it by enriching thought, which will of necessity find for "itself expression ; no mere translation will ever do this." The chief objection to a scheme of this kind, Mr. Aitchison thought, was its costliness. The expenditure would be about Rs. 1,20,000 a year, but he thought that sum might be raised. Liberal donations had already been received, and more were expected. Besides the whole expenditure now incurred on the Lahore College would also be available, as the college would be absorbed in the university, leaving to the Mission College the conduct of preliminary studies at Lahore. They might count, too, upon the sympathies and support of Sir Robert Montgomery, Sir H. Edwarde and others who had left the country, but whose hearts were still in India.

A general meeting of those interested in the promotion of the objects of the university was held at Lahore in the Lawrence Hall on 12th March 1868, under the presidency of Sir Donald Macleod. The following resolutions were passed after discussion :—

(1) That a University should be proposed exclusively for the Panjáb.

(2) That it should be at Lahore

(3) That it should be a teaching body as well as an examining body.

(4) That the governing body consist of a Chancellor (the) Lieutenant-Governor), a Vice-Chancellor, a Council of Senate.

(5) That the university take up the teaching of the students from the point at which the Government colleges leave it off.

(6) That the instruction in the university be on the professorial system.

At an adjourned meeting two additional resolutions were passed:—

(1) That education be conveyed, as far as possible, through the medium of the vernacular.

(2) That while the highest honors of the University be reserved for those who attain the highest form of education, which it is admitted can only at present be attained by those possessing a thorough knowledge of English, the University shall also recognise and honour literary merit and learning in the case of those unacquainted with the English language.

Again on the 25th May a very numerously attended meeting was held to discuss the draft of a letter by the Secretary to Government proposing the establishment of a university at Lahore in terms based on the resolutions of previous meetings. Sir Donald Macleod was again in the chair. The letter was approved of, but it was desired that inasmuch as the funds at the disposal of the university would not at present suffice to defray the cost of a collegiate department the Senate should be empowered to expend funds in increasing the resources of the existing Government colleges, provided that their system was modified so as to harmonise with the principles of the university. Another clause was to be added directing that provision be made for duly recognising and honouring proficiency in English though uncombined with proficiency in Arabic or Sanskrit.

The letter of the Panjáb Government bears date May the 27th. Excepting that the proposed Chancellor afterwards became a President, and that certificates were substituted for degrees, it contains almost word for word the Statutes which were granted to the Lahore University College. The reply of the Government of India to the proposal of the Panjáb Government is dated 19th September 1868, and the decision then arrived at was communicated in the following terms:—

"It is evident from the papers submitted with your letter that "the establishment of a university as an examining body in the "first instance has been proposed on the grounds of economy "alone; and if the primary object of the proposal be to establish a "teaching body, the Governor-General in Council is prepared to "comply with the application made by the Panjáb Government. "Such a body would be called, according to the nomenclature "commonly adopted in England and in India, a college and not "a university. There seems to be in the Panjáb an almost "inexhaustible supply of material which requires to be taught, "but at present a very small supply of material requiring to "be examined. While, therefore, His Excellency in Council admits the propriety of establishing a teaching institution at "Lahore, he is inclined to think that there is nothing

"in the circumstances of the province to justify the establish-
"ment of a university simply for the examination of stu-
"dents." After observing that at the last examination of the Calcutta University only four students of the Panjáb colleges had passed the First Arts standard, that the scheme amounted to a proposal that the Panjáb Educational Department should test the success of its own labours, and that such an institution would have a better chance of success in the North-West Provinces, the despatch proceeds: "His Excellency in Council believes that the "demand for a university in Northern India must before long "be admitted ..... A new university for the whole of Nor-"thern India including the North-Western Provinces, the Panjáb, "Oudh and the Urdu and Hindee speaking districts of the Cen-"tral Provinces. The difficulty of finding a thoroughly competent "body of independent examiners will be great. But this difficulty "is one which it is reasonable to believe will go on constantly "diminishing and will in course of time be entirely surmounted.

"As regards the pecuniary aid which is applied for in your "letter under acknowledgment, His Excellency in Council is quite "willing to sanction a grant-in-aid equivalent to the annual income "of Rs. 21,000 expected from private sources, but with the condition "that, instead of expending the funds in establishing a university "or examining body, they shall be expended on the extension "and improvement of the existing Lahore Government College "on the principles advocated by the Panjáb Government. The "addition of Rs. 42,000 a year to the sum now allowed to that "college would be sufficient to make it one of the most important "Educational Institutions in India, and it would give to the "Panjáb Government the means of carrying out its views as "fully—indeed more fully—than it could do if the proposals were "sanctioned in their present form.

"I am at the same time directed to inform the Lieutenant-Go-"vernor that the Government of India will be ready to sanction "the establishment of a new university for the whole of Northern "India in accordance with the principles now advocated, and to "request that His Honour will place himself in communication with "the Lieutenant-Governor of the North-Western Provinces, and "endeavour to mature a plan which shall meet the wants of both "provinces."

This decision was received in the Panjáb with profound disappointment, and Sir Donald Macleod strenuously contested the arguments of the Government of India, pointing out the insuperable obstacles which, in his opinion, stood in the way of establishing a joint university for Northern India, both on account of the mutual jealousies of Lahore, Dehli, and the North-Western Provinces, and because the whole question of directing the education of

a province appeared to him to appertain essentially to the government of that province. To this remonstrance the Government of India replied in May 1869. In the meantime Lord Lawrence had made way for Lord Mayo, and either because of the change in the Government, or because of the engrossing interest of the Amir of Kábul's visit, or from utter weariness of the discussion, the tone of the present communication is altogether different. In fact the Government of India all but threw up the game, yet stopped short at some half-hearted concessions which have proved to be a source of embarrassment ever since. The final sanction of a University college was conveyed in the following terms :—

"It must be admitted that the degrees conferred by the Panjáb "University, were it now established, must almost necessarily be of "an inferior character, but it was understood that the Lieutenant-"Governor was willing that the proposed institution should not for "the present assume the full character of an university, and that "it should not grant degrees, but certificates only, until the "number of students and the power of teaching in any branch of "study or in any faculty, could be shown to be sufficient to warrant "the conferring of an university degree. . . . . It would, pur-"haps, be a convenient arrangement to attach the Senate to the "Lahore College and to give the entire institution some such "title as that of "University College, Lahore," which would "mark the fact that the present arrangement was merely tem-"porary and was intended only as preliminary to the possible es-"tablishment, at some future time, of an university in the Panjáb.

"The connection of the Senate with the Lahore College need not "militate against either the continuance of the connection of that "institution, or of that of any other college in the Panjáb with the "Calcutta University ; and students who may enter themselves "at the latter university might still be allowed to pursue their "studies at any of the affiliated institutions in the Panjáb."

The enthusiasts at Lahore were not satisfied, and Mr. Lepel Griffin, now President of the Anjuman-i-Panjáb in place of Dr. Leitner, who was in England, on behalf of that Society, put forth an eloquent though unavailing declaration of the views and aims of the promoters of the university.

Sir Donald Macleod in reply stated that his personal sympathies were entirely with the members of the Anjuman, but he considered it undesirable and disrespectful to make a further remonstrance. He had lately availed himself of an opportunity of discussing the matter with the Viceroy and other Members of Council, and could not fail to see that there was an entire unwillingness on the part of the Government generally to identify itself so entirely with a project wholly new, and as yet quite untried, as to raise to the highest dignity amongst educational institutions a body

which was to be constituted on principles greatly differing from those which had heretofore been accepted.

Accordingly, after sanction of the Secretary of State had been received, the Statutes of Lahore University College (afterwards the Panjáb University College) were published, and about 40 of the most considerable persons in the Panjáb, Native and European, were appointed to the Senate. At the risk of repetition it will be convenient to give here the chief provisions of the statutes :—

I.—The special object of the Lahore University College shall be to promote the diffusion of European science through the vernacular languages of the Panjáb, to encourage the enlightened study of Eastern classical literature, and to associate the learned and influential classes with the officers of Government in the promotion and supervision of popular education.

II.—Nomination of members of Senate.

III.—The Senate shall have power to confer, after examination, certificates of proficiency in literature and science, to establish fellowships and scholarships, to reward good vernacular translations, or original treatises, to establish a collegiate department, or to make pecuniary grants to other colleges.

Examinations and instructions should, as far as possible, be in vernacular, provided that in institutions affiliated to the Calcutta University students should be allowed to prepare themselves for its examinations. Superficial scholarship should be discouraged by a modification of the existing system of prescribing text-books, and by substituting largely oral examination, composition, and translation; and by diminishing the number of obligatory subjects. Proficiency in Arabic or Sanskrit, or such other oriental language as might be prescribed by the Senate, combined with a thorough acquaintance with English, should be a necessary condition for obtaining the highest honours of the institution; but provision should be made for recognising and honouring proficiency in literature and science without English, or proficiency in English unaccompanied by a knowledge of Arabic or Sanskrit.

On the 11th January 1870, Sir Donald Macleod as President opened the Institution with an address to the Senate. He congratulated his audience and himself upon the arrival of the day, to which they had so long looked forward anxiously and hopefully, and recapitulated briefly the successive steps by which matters had arrived at their present position. He said that he had long regarded with regret the meagre results which had hitherto been attained towards the formation of a vernacular literature; and accordingly, shortly after assuming charge of his present post, he had caused a letter to be addressed to the Director of Public Instruction, urging him to devote his earnest attention to the matter. His suggestions were immediately taken up with great keenness

and intelligence by the literary societies at Lahore and Amritsar, who under the guidance of Dr. Leitner greatly enlarged upon them, and proposed that an "Oriental University" should be founded at Lahore. The term "Oriental" did not commend itself to Sir Donald Macleod's judgment, but he had been induced to advocate the establishment of a university, partly because of the inability of the University of Calcutta to meet the requirements of Upper India, but more especially to secure an object which he had long had at heart, *viz.*, the association of the leaders of the people in the endeavours of the Government to promote the progress of education.

After the address the Senate proceeded to business. The chief matters taken in hand were the nomination of an executive committee, and the appointment of Dr. Leitner as Registrar, who was declared by Mr. Lepel Griffin to be clearly entitled to it as having been "the creator of the whole project, to which he had unremittingly given his time and attention."

From this time it will be convenient to sketch the history of the University College in more general terms.

Dr. Leitner returned from Europe shortly afterwards, and devoted himself with amazing industry to accomplish the objects of the institution, and to qualify it for the full powers of a university. Under his guidance the Executive Committee of the Senate often prolonged their sittings through the hours which weary officials devote to their evening drive and later—"no fear, lest dinner cool"—like Adam in Paradise.

During the year seven general meetings of the Senate were held. An oriental school was started, in which Pandits, Maulvies, and Munshies were instructed in their own subjects, and in general knowledge, examiners were appointed, scholarships were assigned to the Government colleges whereby the number of students was largely increased, law classes were formed, the Lahore Medical school was affiliated, and endeavours were made to bring the whole of the operations of Government in the department of Literature, Science and Art, and the examination of officers in law or languages, under the control of the Senate. This activity was never relaxed so long as Dr. Leitner remained at Lahore. In October 1871, the first examinations were held upon the new principle; and in the next month, at a public meeting held for the distribution of prizes and certificates, the Lieutenant-Governor announced that he would recommend the Government of India to allow to the University College the power of conferring degrees. For this purpose he appointed a committee of gentlemen, who with a very few exceptions were members of the Senate and all of whom were specially qualified to deal with the subjects under consideration. The committee held daily meetings in

December 1871, and finally submitted a report, which, after further discussion, was accepted by the Senate "subject to their presumed power to amend the scheme after experience of its working."

After a long delay the Supreme Government declined to grant the full powers of a university to the institution in the Panjáb, but the scheme of the Select Committee was not therefore laid aside, but has again been brought forward as the one by means of which the Senate may exercise its privilege of holding examinations and granting certificates.

The scheme contains provisions for holding examinations in Arts, Medicine, Law, and Engineering. With an exception in favour of the examinations in Medicine it is open to the obvious and fatal objection that it does not correspond to any course of study which actually exists, but is simply an indication of the standard to which in the opinion of the authors the students of the Panjáb University should in future be trained. There are at present no schools in the Panjáb in which engineering is taught. Admission to the law classes is almost unrestricted, and they do not yet deserve to be recognised by affiliation to a university. The scheme of the medical faculty carries out the plan of the existing medical school, conferring oriental titles upon students in vernacular who may master the *Baid* or *Yunani* systems of India.

The examinations in arts are, however, in some respects the most important part of the scheme. The general principle upon which they are based is the requirement of much higher proficiency than in the examinations of the Calcutta University, but a smaller number of compulsory subjects. For the B. A. examination only two subjects are required, of which English must be one. Whatever may be the theoretical value of this principle which represents the practice of Oxford and Cambridge, as opposed to that of London and the Scotch Universities, it is unsuited to the constitution of the existing Indian colleges, where from the poverty of the means of instruction it is far more easy to secure a moderate degree of excellence in the subjects required by the Calcutta University, than to attain to high proficiency in a more limited number. It is, of course, possible to provide teaching of a high order in one or two subjects, but properly to carry out the proposed scheme it would be necessary to appoint half a dozen professors on salaries which would secure the services of first-class men. This was foreseen by Mr. Aitchison, but the present proposal deals with the limited resources now available. Even if the money were forthcoming, it may be doubted whether it would be wise to spend a much larger sum than at present upon such students as might be collected in a college at Lahore.

It may be worth while to point out one defect in the proposed

Arts' scheme—to shew that these examinations could never be held in practice, as they do not owe their origin to the familiar experience of the lecture room, but were elaborated in the study from an abstract point of view, and then hurried through the committee.

In accordance with the principles declared in the Statutes, examination in text-books is prohibited. Nevertheless, as the impossibility of obtaining anything like a complete acquaintance with literature or philosophy must be recognised, the university "recommends the following course of reading as an "indication of the standard to which candidates will be "expected to have attained." Then follows a list of books something like that prescribed by the Calcutta University only rather more extensive. One can understand an examination in the English language, or in English literature, but the study of the *Merchant of Venice* will contribute only very remotely to the answering of questions on *Macbeth*, and a perfect knowledge of Wordsworth's *Excursion* will not much assist the interpretation of Swinburne's *Songs before Sunrise*. It is true that for the admission to the Civil Service young men are examined in the whole of English literature, and the Classical Tripos examination at Cambridge is not confined to text-books. But there is no analogy between these cases and the scheme of the Panjáb University. The successful competition-wala will have read cursorily most of the plays of Shakspeare, and has a thorough knowledge of the most important of each class. The Cambridge man who takes honours in classics has been familiar with his subject for at least a dozen years, and will fare ill if more than half the passages selected are new to him. But in the Panjáb University scheme a list of books is given not much exceeding those prescribed for Pass Examinations in the English Universities, and the knowledge of a whole literature is supposed be the result!

An exception, however, should be made in favour of philosophy. Here the course of reading indicated is certainly wide enough, though one may doubt whether a young man's time would be profitably spent in going through it. The authors "indicated" are Locke, Berkeley, Hume, Reid, Hamilton, Cousin, Mackintosh, Butler, Stewart, Mansel, Thomson, Fowler, Spalding. But enough of this. The scheme is a purely visionary one, and it is hardly fair to criticise it as one which had been adopted in sober earnest by men who knew the students who were to be examined. Let us try by placing ourselves on the level of facts to form an opinion as to the possibility of accomplishing the ends which were proposed by the founders of the Panjáb University movement.

There are in the Panjáb four classes of students who may come within the scope of a university, and who may be assumed to be fit objects for its operations.

(1)—The students of the Anglo-Vernacular schools and colleges who must be dealt with on some such system as that which the Calcutta University has hitherto pursued.

(2)—Students of Government Vernacular schools who have hitherto had little connection with higher education, but who may be encouraged to study the oriental classics while acquiring a sound though limited education in subjects of general knowledge.

(3)—Students of Medicine, Engineering and Law, for whom a suitable course may be prescribed either in English or Vernacular.

(4)—Pandits and Maulvies who have considerable familiarity with their sacred books, but no attainments in the subjects taught in Government schools.

Such persons may be found in sufficient numbers, provided that gratuitous instruction and subsistence allowances are supplied. Additional funds would be required, but existing institutions afford at least a foundation. The weak point in a university for the Panjáb is, and alway must be, the difficulty of obtaining experienced examiners and a competent Senate. At Lahore is the seat of Government, the Law Courts, and a Medical School; but some of the most influential official members of Senate are for six months away at Murree, and for most of the rest of the year in camp with the Lieutenant-Governor. The native members of Senate, who, after all are the *raison d'être* of the Panjáb University, are with very few exceptions wholly inexperienced in the ideas of the European university system.

Lahore itself is famous in the history of politics, but is in no sense a seat of learning; while Dehli is less able than Lahore to contribute the elements of a governing body. Indeed, no single town in Northern India is strong enough to furnish the constituents of a university; and the only way to accomplish the object in view is to collect the material which is dispersed over the country lying between Benares and the Indus. University Colleges and councils may continue to exist at Lahore, Allahabad or elsewhere; but the supreme governing body of a University in Northern India should be composed of competent persons from all parts of the Northern Provinces. Their meetings might be held once a year at Simla, or, if it were thought more suitable, at Dehli. They must be for the present at least mainly European officials, for the Senate should include none but those who have gained Honours in some University, or whose attainments are known to entitle them to speak with authority on the matters which would come up for discussion. A prejudice in favour of private enterprise often leads in this country to a sacrifice of force which can only be applied by the State. Official members of Senate should be considered on duty, and the examiners selected by them should in the same way receive their instructions from Govern-

ment. They would require no pay besides their ordinary salary and travelling allowance, being sufficiently remunerated by the honour conferred upon them. Surely the service is sufficiently important for Government to bestow this, the most effectual aid in its power.

But the object of this paper has been rather to trace the history of the Panjáb University College, than to suggest a means of escape from the present deadlock. Something, however, must be done if the work commenced with a fair promise of success is not to become fruitless. The present Viceroy who was in part author of the Despatch of 1854 is specially qualified to lay the foundation of the fourth university, and he is not likely to allow his term of office to expire without settling a question which seems now to call for his intervention.

C. PEARSON.

ART. VI.—THE TERRITORIAL ARISTOCRACY OF BENGAL.

No. VI.—THE KA'NDI FAMILY.

THE Kándi family, commonly known as Lálá Bábu's family, has been always distinguished for its adherence to the Hindu religion and for its charity. The devotions of its scions to pious work will be abundantly testified in the course of this narrative. In Bengal the Kayasthas as a class of people occupy by far the most prominent rank next to that of the Bráhmans. Originally they came from Kanauj with the five Bráhmans who had been invited by Adiswara, King of Gaur. As their descendants became numerous, they scattered themselves into different parts of the Province. Those settling in the North were called *Uttaráris*, those on the South *Dakshináris*, those on the East *Bangojas*, and so forth. When King Ballál Sen classified the Bráhmans according to their respective merits, or in other words introduced Kulinism, he made a similar division for the Kayasthas also. It will hence appear that the geographical distinction of the *Uttaráris* proved no bar to their being included in the list made by him, but that they are as much governed by his rules as their masters the Bráhmans, and as other Kayasthas. Some *Uttaráris* of the present time deny this fact, and in their ignorance of the social history of the country assert that they are above the Balláli system. But when we remember that their Jibdhar and Provákar and Mani and Mallik stood high in the general classification, and their descendants still take the same rank, we cannot but conclude that their assertions are groundless and fallacious.

The Kándi family belongs to the *Uttarári* class of Kayasthas, and has its origin from Jibdhar named above. It thus stands one of the highest in the order of Kulinism as in opulence; and this union of the two in the same family is seldom to be found in the annals of the aristocracy of the land.

Little is known of the early history of this family; the traditional accounts are so obscure that it will not be worth while to mention them here. It is, however, beyond dispute that Hara Krishna Singh was the first who settled at Kándi, and may thus be called founder of the family. He began his career as a money-lender, and afterwards opened an extensive business in silk. During the Marhátta incursions he migrated to Boália on the east side of the river Bhágírathí. Possessed of much wealth, he obtained this village along with others by presenting *nazaráná* to the Nawáb of Murshídábád. Boália still forms a part of the vast

estate of the Kándi family. Hara Krishna Singh was not only a firm believer in Vaishnavism, but became a convert to it with his whole family, a fact which Rání Kátáyání, whom we shall speak of in the course of this narrative, used to relate often with pride.

Murálídhar was the son of Hara Krishna Singh. He was a banker and the father of three sons, namely, Náráyan Singh, Gauráng Singh, and Bihárí Singh. We are told that Gauráng Singh Mazumdár, being expert in business became a servant of the Kánungo Mahásay, or Bangádhicary; and amassed wealth, acquiring mahals, táluks, and lákhiráj lands. In the twelfth year of the reign of Sháh Alam, 1178, he is said to have obtained a sanad of perpetuity at Kándi from the Emperor of Delhi, for the purpose of endowing the shrine of Thákur Rádháballabha Jí; but the chronology is evidently incorrect.

Gauráng Singh made a brick-built house at Kándi with cornices after the fashion of Siráj-ud-Daulah's residence. This circumstance so exasperated the haughty Nawáb that he immediately ordered the cornices to be pulled down and the builder to be arrested. This mark of vandalism is visible in some parts of the dilapidated house which still exists. His brother, Bihárí Singh, appears to have had four sons:—Dáindayál, Rádhá Kánta, Rádhá Charan, and Gangágovind. Gauráng Singh having no heir adopted his nephew, Rádhá Kánta, as his son; and he and his brother, Gangágovind, were the most important of the four brothers, and those of whom most is known. Rádhá Kánta succeeded his father in his employment, and acquired wealth also, it is said, by his "own energy." Mr. Westland gives the information that "he was a high revenue officer under Alivardi Khán and Suraj-ud-Dowla, Nawabs of Bengal, and when the British obtained the Dewany of the Soobas Bengal, Behar and Orissa, from the emperor, he rendered great service by placing at their disposal the necessary settlement and collection papers, for which he was rewarded by the grant of a sayer mahal and right of collecting octroi at Hugli."

He was an orthodox and devoted Hindu, and appears to have greatly enriched the shrines at Kándi. He purchased the villages of Buhera, &c., in 1168; and in 1178 executed a deed by which he dedicated them with four other villages, and other property to the worship of Srí Srí Isvar Rádháballabha Jí at Kándi—causing them to be transferred into his name and also providing for the reception of visitors, pilgrims and Vaishnavas, the annual festivals and játrás and ornaments of the idol. He was in every respect one of the most remarkable men of the time. His capacity for business was marvellous, as his memory was prodigious. It is said he could repeat by heart what he had once seen without

referring to papers ; and had all the business of the revenue at his fingers' ends. He did not, however, remain long in the Nizámat before he was suspected of intriguing with the British. Siráj-ud-Daulah was then in the zenith of his power, and he was mad to revenge himself upon Rádhá Kánta. A long time before, Rájá Durlabhrám had taken a liking for Rádhá Kánta for his high abilities, and he it was who informed him of what was going on at the Darbár for his ruin. By the advice of his friend, Rádhá Kánta fled to Nuddea, where a conspiracy was then being concocted against the Nawáb. At a full assembly held at the house of Rájá Krishna Chandra, and in presence of the emissaries of Lord Clive, Rádhá Kánta vividly described the state of the feelings of the officers of the Nawáb. He said they were sick of him, and longing for a change. He went so far as to assure the conspirators that Mírjáfar had already made up his mind, and Mohanlál, the General, might be bought over if an attempt to that effect were made. The emissaries then left for Chandernagar where Clive had his head-quarters. The events of the battle of Plassey showed how true and faithful was the information supplied by Rádhá Kánta at the risk of his life. When Mírjáfar was installed on the throne, Rádhá Kánta was appointed by Clive to manage all the affairs of the Revenue Department along with Muhammad Reza Khán and Rájá Durlabhrám.

Rádhá Charan was a weak-minded person and not much liked either by his father or his brothers. He appears to have remained at home, while Rádhá Kánta used to be generally absent attending to the official duties. Gangágovind was likewise an absentee from home, being employed as joint Diván, with Kánta Bábu, of Warren Hastings. During the Muhammadan administration there were three officers who held employment direct from the Emperor of Delhi, *viz.*, the Nawáb as the head of the Government, the Kánungo the head of the *Jamá* or revenue department, and the Ráyráyán the head of the criminal affairs. All these offices were hereditary ; and the revenue Sheristá was presided over by the predecessors of the Bhattamattí family, as that of police by Mahárájá Rájballabha and his ancestors. Gangágovind, like his brother, Rádhá Kánta, was the Diván or Kánungo, when the question of the abolition of the double government was on the *tapis*. While an employé in the Silk Factory of the East India Company at Kásímbázár, Mr. Hastings had had an opportunity not only of making himself acquainted with Gangágovind, but also of hearing his uncommon tact, ability, and judgment in matters connected with revenue. When, therefore, he became the Governor-General he at once took Gangágovind into confidence and made him his public Diván ; and Kánta Bábu, who had saved his life during the sacking of the factory by Siráj-ud-Daulah, his private Divan.

This account may be relied upon from the circumstance of the one being more completely versed in business and better educated than the other. The probability becomes stronger, when we consider that Kánta Bábu does not figure so prominently in the annals of that period as his contemporary Gangágovind.

While Kánta Bábu performed the out-door work, Gangágovind Singh, being a Persian scholar and well acquainted with zamíndárí affairs, conducted the business of the Sheristá, and advised Mr. Hastings as to the best way of effecting the changes contemplated by him in the judicial and revenue departments. The object of those changes was the abolition of the double government, and to secure to the East India Company the nominal as well as the real administration. It was the deposition of the puppet Viceroy at Murshidábád, and the establishment of properly constituted courts of justice. The new assessment of zamíndarís and táluks of Bengal for the purposes of revenue was conducted by Mr. Hastings, a task in which he derived valuable assistance from the experience and fiscal knowedge of Gangágovind Singh.

Mr. Hastings afterwards abolished the provincial Councils and appointed Gangágovind Singh as Diván of the Committee of the revenue. He was also appointed Náyéb Kánungo; and his son, Prán Krishna Singh, Náyéb Diván of the Committee. Thus we see the members of the Kándi family holding the highest offices in the State, and exercising immense influence by virtue of their position. All zamíndárs, tálukdárs, and in fact all those who held lands in any part of the country used to pay their respects to Gangágovind. Raja Krishna Chandra of Nuddea always looked upon him as a second Mr. Hastings; and it was invariably his motto in addressing him

দরবার অসাধ্য পুত্র আরাধ্য
কেবল ভরসা গঙ্গাগোবিন্দ

meaning

No success at Court, no obedience in son,
My hope is only in Gangagovind.

Gangágovind Singh enjoyed the entire confidence of Mr. Hastings, and used to be entrusted with delicate missions requiring great tact and judgment. He was sent to Dinájpur to administer the zamíndári during the minority of the young Rájá. This youth was the adopted son of the late Rájá who, in consideration of the English Government having recognised and confirmed the adoption, had promised to pay to it a *nazar* of three lákhs (laksha) of rupees—which in those days of impecuniosity he was too glad to accept on behalf of his masters. For carrying out the instructions of Mr. Hastings, Mr. Burke in the trial of Hastings exhausts the vocabulary of abuse in speaking of him. Mr. Burke entered

into a minute detail of the peculations in Dinájpur, from whose Rájá £30,000 had been extorted. He touched upon the bribes received by Gangágovind Singh, and by Mr. Hastings' "agent, Kánta Bábu." The former was by contract to have raised a large sum in another district, but did not pay above one-half of it: so that between two different agents who were to have raised £90,000, only £50,000 were acknowledged to be paid into the Company's treasury. The remaining £40,000 found its ways into the pockets either of Mr. Hastings or of his agents.

Gangágovind Singh was also charged with having received from Kánárám four lakhs of rupees for the benefit of Mr. Hastings. In spite of his connection with the proceedings of Mr. Hastings, he obtained the good opinion and enjoyed the confidence of his successor, Lord Cornwallis, who appointed him *Jamánavis*. In the latter capacity he assisted Lord Cornwallis in effecting the Permanent Settlement. His extensive knowledge and ripe judgment enabled him to render invaluable assistance to Lord Cornwallis. His intimate acquaintance with the qualities of the land and resources of zamíndárís were of great service in fixing the assessment. As *Jamánavis* he is said to have submitted to the Ráyráyan Rájá Rájballabha on the month of June 1786, a jamá wásil bákí of the Company's land revenue of Bengal, Behár and Orissa (Uríshyá) for the years 1188, 1189, 1190, and 1191, Bengal style; but this is probably a mistake. As is said above, the Ráyráyan had nothing to do with fiscal matters. On Mr. Hasting's installation in the office of Governor-General, he took Rájballabha to his Council; and it might be, Gangágovind submitted the paper to him as a member of such Council, and not as Ráyráyan.

It appears from that document, the gross *jamá* according to the settlement, was Rs. 1,11,801,408-11-3; and that the collections in the respective years amounted to Rs. 1,00,926,411-8-10.

Gangágovind Singh was zealous in promoting the Hindu religion and celebrating its worship. He performed the *sráddha* or the funeral ceremony of his mother with immense pomp.* There were

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* Gangágovind was never fond of sinking money in bricks and mortar for his own habitation; and an assembly, such as he had invited, could not be accommodated in any house, however spacious it might be. He had, therefore, to erect a temporary shed on a *maidán* outside his dwelling. The Rájás of Nadiyá and Nátor being Bráhmans had the first seats; then came those of the Rájás of Bardwán and Dinájpur, and next there were the Rájá of Jessor and the *Mahásayas* of Pátuli, and so on, according to the rank and position of every guest. Rájá Krishna Chandra was laid up at the time, and was unable to stir out. He therefore desired his eldest son, Siva Chandra, to proceed to Kándi on the occasion. On his refusing to do so, the Rájá pointed out to him the power and influence of Gangágovind with the rulers of the country; and went so far as to say, that of all men in Bengal, Gangágovind was the only person whose friendship and good-will he was ever solicitous to secure at

not only Pandits from Kásí and Kánchí, Tirhut (Tirhoot) and Nadiyá, but every Chatuspáthí was represented. There were the Rájás of Nadiyá and Nátor, Bardhamán (Burdwan) and Dinájpur. There were zamíndárs from all parts of Bengal anxious to pay their homage to the Divánjí who had assessed and settled their estates.

There were Bháts, or herald-minstrels, who repeated in their own sing-song way the genealogy of the Rájá. There were thousands and tens of thousands of invited guests. There were provided unlimited stores of provisions. There were tanks of milk, *ghi*, oil * and honey. There were hills of rice and dál and peas. The *sidhás* sent to the invited guests included an enormous quantity of rice and vegetables and ghi and other materials for a feast. When the guests were assembled, the Rájás congratulated Gangágovind Singh on the splendour of this *sráddha*. The *sráddha* cost twenty lakhs of rupees, and its annual celebration used to cost a lakh.

Gangágovind Singh also encouraged the Pandits of Nadiyá; contributing largely to their support and that of their students, repairing their houses and providing them with food and clothing. The necessary articles were said to have been transmitted by him to every *tol* on the first of each month. He built temples at Rámchandrapur, on the very spot near Nadiyá where Gauránga (Cháitanyá) is said to have been born, for the worship of Srí Govind, Gopínáth, Krishna Jí, and Madan Mohan Jí. We

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any cost. Siva Chandra was convinced of the truth of his father's reasoning, and went at last with a vast retinue. On his arrival an immense quantity of provisions was sent to him for his *sidhá*, which he distributed among beggars and mendicants. Another quantity was sent and it was for the second time so distributed. The object of Siva Chandra in thus squandering away what was meant for his use, was to test the contents of the store which his host had provided on the occasion. For the third time one more *sídhá* was given, and an idea of its quantity may be formed when it is known that the turmeric alone consisted of four cart-loads. Siva Chandra was astonished at this, and is said to have declared in full assembly "Divánjí! What a ceremony is this! It is really a Dakshayajna." "It is more than that," replied Gangágovind, "for at that Yajna Siva did not attend." It will thus appear that it was Siva Chandra and not any other guests who refused to accept the *sidhá*.

Besides the *sráddha* of his mother, Gangágovind performed two more ceremonies with a pomp, the like of which has never been witnessed in Bengal. One was the Annaprásana of his grandson, Lálá Bábu, in which invitation cards to Pandits were engraved on gold leaves, and the other the *Páran* or the chanting of the sacred Puránas at his house in Belur. Gadádhar Siromani of Sonámukhí, Bardwán, the father of chanting, is said to have made his *début* on that occasion, and Gangágovind was so much pleased with his eloquence and musical powers, that he rewarded him with a lump sum of one lakh of rupees.

* The tank in which oil was stored up, is still existing and goes by the name of *Telgoria*.

find him on 1st Agraháyana, 1199 B. S., making over certain lands, houses, &c., which had been bought in the name of Prán Krishna Singh, but (it is carefully stated) from self-acquired funds and "without using the patrimony," to the "dearer than life," Krishna Chandra Singh (his grandson). The deed thus runs: "Being very desirous to establish the worship of Srí Srí Isvar at Rámchandrapur, and you having afforded me great assistance in the construction of temples, &c., therefore, being well pleased with you, &c."

Gangágovind Singh used also to incur considerable expense for the support of pilgrims to the shrine at Ságar, who received from him boat-hire, food, clothing, &c.; and he established places for relief of mendicants at Belur and elsewhere.

In this way and in many other acts of charity he spent all the money he had acquired; and on the retirement of Mr. Hastings he became so much reduced in circumstance that he could not complete the Thákur Rádháballabha's house at Kándí, and was often obliged to call upon his son, Prán Krishna, for even small assistance.

In 1179, two days previous to his death, Rádhá Kánta Singh executed a deed, appointing Rádhácharan and Gangágovind to act as *sabaits* in all matters relating to the worship of Srí Rádháballabha and management of the property devised by him for that purpose, concluding with the following words: "I look to you for my attaining to the holy mansion, and request you will have my bones placed where Srí Srí Iswar Jí bathes." Rádhá Kánta being childless, adopted Pránkrishna Singh, the son of his brother Gangágovind as his heir. Pránkrishna therefore represented the main portion of the family wealth, the only other sharer in which was Bijaygovind, son of Rádhácharan. Rádbácharan continued to superintend the household affairs until his death at Changi, about five years after that of Rádhákánta; when his funeral ceremony were performed by Diván Gangágovind Singh, Prankrishna and Bijaygovind being present. Bijaygovind remained at Kándi studying Persian, and Prnákrishna was taken by Gangágovind, his father, to Calcutta. Some differences as to their shares of the property seem to have arisen between Bijaygovind and the rest of the family, for an arrangement was entered into between him and Pránkrishna Singh on 1st Maugh 1212, by which several villages and a portion of the family dwelling house were made over to him. Again on 27th Aughran 1226, a further arrangement was effected, by which he obtained from Krishnachandra Singh, Krishnachandrapur in Belur near Uttarapárá and other landed property yielding an annual profit of 8,000, and 16,000 Rupees in cash. Bijaygovind had an elder brother Ramánanda, of whom nothing is known.

Mr. Hastings now appointed a commission for the purpose of ascertaining the resources of zamíndárís and letting them by public auction. The scheme was well intended, and its object was the settlement of the revenues. Gangágovind Singh was placed at the head of the commission. He was vested with the power of examining the titles and accounts of zamíndárs and making estimates acre by acre, a power the abuse of which might bring enormous wealth. It was called an Amíní Commission; and Gangágovind Singh was the head Amín. While he brought his vast experience to bear upon the investigation, he did not scruple to make it an engine for his personal aggrandisement.

Gangágovind Singh was appointed by Mr. Hastings as the guardian of the young Rájá of Dinájpur, and under the instructions of His Excellency, he exacted from the Dinájpur ráj a *peshkash* of four lakhs of rupees of which he said to have pocketed the half. His confidential agents were Govind Ghosh and Nanda Lál. Gangágovind Singh also claimed from Mr. Hastings a large portion of the Dinájpur ráj as a reward for his services. Mr. Hastings supported the claim, and strongly recommended it to the Council. The young Rájá had also at first given his sanction to the application, but afterwards withdrew it. Gangágovind denied the right of the Rájá to these estates, and contended that all property in this country depended upon the will of the Government. He also shewed that the Rájá's family came into possession of the zamíndárí by the mere favour of Government. But this reasoning did not go down with the Council.

Mr. Burke charges Mr. Hastings with destroying the institutions of the country, by not appointing a Diván as a controlling authority on the farmers, but by delegating the power of appointing that officer to Gangágovind Singh.—"Did Mr. Hastings vest these officers to him? No; but if Mr. Hastings had kept firm to the duties which the Act of Parliament appointed him to execute, all the revenue appointments must have been made by him; but instead of making them himself he appointed Gangágovind Singh to make them; and for that appointment, and for the whole train of subordinate villany which followed the placing iniquity in the chief seat of Government, Mr. Hastings is answerable. He is answerable, I say, first for destroying his own legal capacity; and next for destroying the legal capacity of the Council, not one of whom ever had, or could have any true knowledge of the state of the country from the moment he buried it in the gulf of mystery and of darkness under that collected heap of villany, Gangágovind Singh. From that moment he destroyed the power of government, and put every thing into his hands; for this he is answerable."

In strong contrast to these hostile expressions of Mr. Burke, Mr. Hastings, the best abused man of his time, thus bears his personal testimony to the merits of Gangágovind Singh, on the occasion of his departure from India :—"The regret which I cannot but feel in relinquishing the service of my Honorable employers would be much embittered were it accompanied by the reflection that I have neglected the merits of a man who deserves no less of them than of myself—Gangágovind Singh who, from his earliest youth, has been employed in the collection of the revenues, and was, about eleven years ago, selected for his superior talent to fill the office of Diván to the Calcutta Committee. He has from that time, with a short intermission, been the principal native agent in the collection of the Company's revenues; and I can take upon myself to say that he has performed the duties of his office with fidelity, diligence, and ability. To myself he has given proofs of a constancy and attachment, which neither the fears nor expectations excited by the prevalence of direct influence could shake; and at a time, too, when these qualities were so dangerous, that far from finding them amongst the generality of his countrymen, I did not invariably meet with them amongst my own. With such a sense of his merits, it is natural that I should feel a desire of rewarding him; for justice, gratitude, generosity, and even policy demand it: and I resort to the Board for the means of performing so necessary a duty, in full confidence that, as those things which I shall point out are neither incompatible with the Company's interest nor prejudicial to the rights of others, they will not be withheld from me. At the request, therefore, of Gangágovind Singh, I deliver the accompanying *darkásts* or petitions, for grants of lands lying in different districts; the total jamá or rent of which amounts to Rs, 2,38,061-12-1."

In the Regulation 27 of 1793, re-enacting with alterations and modifications, the rules for the resumption and abolition of the sáyer or internal duties and taxes, the following certificate is awarded to Rádhágovind Singh or rather as he ought to have been named Rádhá Kánta Singh, entitling him as the proprietor of Govindaganj to a certain amount of collections from the said *ganj*.

"The case of the proprietor of Govindaganj being of a special nature, the following certificate is to be granted to him :—"

"This is to certify that Rádhágovinda Singh having proved his right as required by the 10th Article of the Regulations of the Governor-General in Council of the 11th June 1790, to compensation account, the sáyer collections formerly made by him in the gunj denominated Govindagunj in the district of Nadíyá, now Hooghly (*Hugli*), but since prohibited by Government he is agreeably to the orders of the Governor-General in Council of the

3rd February 1792, entitled to receive, on this account, in equal quarterly proportions from the Collector of the district above mentioned * the sum of Rs. 3,467-1-17-3, being the amount of his remaining rate annual collections from the hát or gunj aforesaid, after deducting the sum of Rs. 100 the revenue of Government; this payment to commence from the period of the above gunj having been resumed in conformity to the orders of Government of the 11th June above mentioned, provided no part thereof has yet been received. It is to be understood, that the payment of this compensation by the Collector in the manner aforesaid, is to continue no longer than until it shall please the Governor-General in Council to determine on any other mode of making the same."

Pránkrishna Singh, the son of Gangágovind, while he was Náyeb Diván, felt it his duty to indict Gholám A'shraf, Rám Chandra Singh, and Gopí Názir for conspiracy. The particulars of the case are briefly these:—In 1782 Gholám A'shraf, who had acted as vakil of the Fauzdár of Hijlí, was arrested for having obtained certain sums of money from the Company's treasury through the instrumentality of Fauzdárí dákhilás or receipts forged in the name of Nawáb Muzaffar Jang. The Nawáb presided over the Fauzdárí or Criminal Courts, and these dákhilás were the drafts which are purported to have been given by him to the several officers of those courts for the amount of their salaries and disbursements.

The enquiry into these charges against Gholám A'shraf was entrusted to Mr. Willes, the then Remembrancer of the Criminal Courts. Gholám A'shraf to screen himself, accused Pránkrishna Singh of a participation in his guilt. Mr. Willes examined with great care and diligence all the circumstances of the charge, and after an investigation which had employed him above a month, submitted his report to the Board. In this he confirms the suspicions against Gholám A'shraf, and entirely acquits Pránkrishna Singh. Gholám A'shraf was, on this report, committed to take his trial at the Sessions. While a prisoner he preferred a petition to the Governor-General, not only adhering to the charges he had made against Pránkrishna Singh, but also accusing his father, Gangágovind Singh. "To investigate the whole subject a Special Commission consisting of Messrs. Charles Wilkins, James Grant, Jonathan Duncan, and John White, was constituted by the Board. These gentlemen opened their commission on the 12th day of April, having been first sworn to the faithful execution of it. Their proceedings display great ability and uncommon

* This grant being made in perpetuity is still enjoyed by his descendants.

diligence. They followed Gholám A'shraf through all his charges, and carefully examined every witness and every record to which either his suggestions or their own recollection pointed in support of them. Finding, however, that all the evidence which had been adduced to maintain the charges invariably disproved them, they told Gholám A'shraf on the 23rd May that they would allow him fifteen days more for the production of other witnesses, and that if he did not then substantiate his charges, they should report their proceedings to the Board."

"On the 7th June Gholam A'shraf produced three witnesses, but after a short examination they were found to have been all suborned for the purpose. The Commissioners reported this discovery to the Board. The Board laid it before Sir John Day, the Advocate-General, and he advised that the witnesses and their accomplices should be prosecuted. Two of them were accordingly brought to trial at that Sessions, and one was convicted. The Commissioners continued their enquiry, and in August made their Report to the Board fully acquitting the Diván and his son of all the charges which had been alleged against them."

When the false witnesses were detected at Chitpur, the Diván and his son were confirmed in a belief which they had before entertained, that Gholám A'shraf, in all the charges he had brought against them, was an instrument only in the hands of others; and under this conviction, Pránkrishna seems to have preferred the present indictment against Rámchandra Sen and Gopí Názir. Pránkrishna preferred an indictment against Rámchandra Sen and Gopí Názir for conspiring with the aid of Gholám A'shraf to deprive him of his reputation, his official position, and to obtain the forfeiture of his goods. The trial commenced on the 21st December 1785, and occupied the court 40 days. The verdict of the Jury was as follows :—" We find Gopí Názir not guilty in either count. We find Rám Chandra Sen guilty of combining with Golám A'shraf to prepare and deliver a Persian *árzi* as stated in the third count."

Of Pránkishna comparatively little further is known, except that he was in the employ of Government in the Settlement Office of Azimábàd, and added very largely to the family estates, purchasing three-fourth of Parganá Bagowan and the whole of Naldi in 1801 from the Board of Revenue. Pránkrishna also purchased lot Sríhati and lot Jobi in Bírbhúm. He is reputed to have also been devoted to his religious duties, and to have maintained the worship at the various shrines with care.

His son, Krishna Chandra Singh, (commonly known through Upper India as Lálá Bábu) distinguished himself by extreme devotion to religion. He was employed in the post (important in those days) of Sheristádár in the Magistrate, Collector and Judge's offices,

at Bardwán; when he commenced work he was only 17. Subsequently, when possession was taken of Orissa, he was appointed there as Diván in charge of the Settlement. He was there in 1803. He bought property, Parganás Rahun, Sire, and Chabiskud there in 1816, of which he had some difficulty in getting possession; but he declined to settle for the Government revenue assessed on it in 1820—since which time the estate receives *malikáná*. He is said to have celebrated the *sráddha* of his father with much splendour. He purchased Parganá Anúpshahr, partly in Alígarh, but chiefly in Bulandshahr.

Krishna Chandra Singh was in every respect an extraordinary man. He began his boyhood with that intense devotion to learning which he afterwards turned so signally to religion. With the means at his command he engaged the most eminent teachers to teach him Arabic and Persian, as well as Sanskrit. He was considered one of the best Persian scholars of his time, and his knowledge of Sanskrit was so far respectable that he could understand and paraphrase the most difficult passages of Srímad Bhágbata, which he had got almost byheart. He is also said to have paid much attention to caligraphy, for he could write with remarkable neatness and freedom. Some misunderstanding, however, with his father, diverted his mind from study; and at the age of seventeen, he accepted the Divánship of the Collectorate of Bardwán. Though very young, he soon evinced an aptitude for business and a knowledge of rules and regulations such as might be expected only from a man of talent and intelligence. He had not been long in that situation ere he was looked upon by the Government as the fittest person to be entrusted with the work of settlement of Orissa. While in Bardwán he purchased the zamíndárí of lot Bisálakshmípur in that district.

After his return from Orissa, he resided chiefly in Calcutta, managing his property and studying the Puránas; for which purpose he always kept by him a set of men learned in the Sástras. Except with the Singh families of Sobhábázár and Jorásánko, he never mixed freely with the society of Calcutta, some of the leaders of which he hated for the laxity of their morals. Personally he had no great regard for Rájá Rájkrishna; but he entertained great veneration for the mother of that nobleman, who also invariably treated him as her son, and used to send him presents on every festive occasion as tokens of her affection. It is said that Rájkrishna abstained from a certain mode of life he was then pursuing under the moral influence of Krishna Chandra, who looked upon him as his brother.

Krishna Chandra was an ascetic by nature. The most remarkable feature in his character was self-abnegation. He had all that can make a man proud of himself and of his position—rank, wealth,

learning to boot. But in the midst of all these, he looked to his Maker, and to him alone, for his happiness in life. He had made it a rule from which he never deviated, to devote five hours daily to worship and the telling of his beads. He lived solely upon vegetable food ; and that simply dressed. He had a notion that rich food excites the animal passions ; and he therefore avoided it. He proceeded to Brindában in the prime of his age, and it was in that holy shrine that he made his life remarkable both by acts of charity and by extraordinary devotion. Before, however, he left home, he made every arrangement for the education of his son and the control and guidance of his household. Bábu Nilmani Bose of Chorebagan, Calcutta, was appointed general agent to conduct all law-suits, as well as to manage all zamíndárí affairs. He took with him the enormous sum of 25 lakhs of rupees ; and took for his residence a large mansion built by the Mahárájá of Bharatpur. It was was not then known who he was, or for what purpose he had come. But the fame of his charity soon spread abroad ; and even excited the cupidity of thieves and dákáits of whom there were great numbers in the neighbourhood. His house was plundered ; and money to the amount of about three lákhs was carried away.

About this time (1227 Jait) Krishna Chandra directed his attention to the primary objects of his visit to the Upper Provinces. One was to build a magnificent temple, and the other to retire finally from the concerns of this world, and to lead the life of a hermit. For the materials of the building he applied to one of the chiefs of Rájasthán, who having heard of the purpose for which they were required, gladly allowed him, free of charge, as much stone and marble as he could carry away from his territory. Arrangements were accordingly made for the transport of the materials to Brindában ; in which also the Ráná assisted him. It so happened that the Ráná then fell out with the British Government in respect of a treaty which he had been called upon to sign ; and the vacillation which he showed on the occasion was made a subject of inquiry. Sir Charles (then Mr.) Metcalfe was at the time resident at the Court of Dehli with plenary powers, as Commissioner, to deal with all offences against the British Government. It was insinuated to him that the Ráná would have put his name to the treaty, had it not been for the intrigues of one Krishna Chandra Singh, *alias* Lálá Bábu, a native of Bengal, his Diván. Mr. Metcalfe without ascertaining as to how far this report was current, at once issued an order for the arrest of Krishna Chandra upon a charge of State conspiracy. When this order reached the Magistrate of Mathurá, people of all classes began to ask each other, how was it possible that a man so pious, so religious, and so benevolent could be implicated in a crime so great.

"No doubt," said they, "it is the act of some malicious persons "who have poisoned the Commissioner's ears against him. We "will follow him to Dehli, and see what becomes of him." They did so, and no less than about ten thousand persons—among whom many were Mewátis, Játs and Gujars—escorted Lálá Bábu to Dehli with the firm determination to die in his cause if any thing adverse should happen to him. The escort gained strength as it proceeded, and the crowd swelled to double its original numbers. Dehli and its neighbourhood were not then as they are now. Mr. Metcalfe was alarmed at the multitude that thronged the streets of the city, and he could not easily account for the popularity of the alleged culprit. He therefore thought it prudent to make private enquiries at first as to the character and antecedents of Lálá Bábu, and subsequently, if necessary, to bring him to trial. Mr. Metcalfe had for his Persian writer a Bengáli named Debíprasád Ráy of Sántipur in Nadiyá. It was through this man, as well as from other sources, he learnt all about Lálá Bábu, his family, and his and their faithful services to Government; and when he became fully satisfied of his innocence, he called him to his presence, and made him be seated on a sofa. Lálá Bábu spoke in a dignified tone, such as befitted a soul pure as his, and a heart never capable of any offence whatever against any individual, much less against the East India Company whose salt he had eaten. He narrated at length all that had passed between him and the Ráná, and the wholesome advice he had tendered to him to gain the good-will of the Company Báhádur. As to the allegation of his being the Diván of that chief, he said that he had had enough of the services of human beings, and the only employment he would now seek for would be to do his duty to his God. On the next day Mr. Metcalfe took Lálá Bábu to the Court of the Emperor, where, at a full Darbár, he introduced him to His Majesty, as one who with his ancestors had performed important services to the Company Báhádur, in posts of the highest responsibility. At the request of the Resident, the Emperor, who was then the fountain of honour, offered Lálá Bábu the title of Maháráját which he, however, politely declined to accept.

About a month after, Lálá Bábu returned from Dehli amidst the loud cries, "*Ját Lálá Babu ka ját*," of the inhabitants of Brajadham. During his stay there he purchased from the family of Rájá Sher Singh that extensive and compact zamíndárí, Perganá Anúpshahr. He also purchased in the district of Mathurá almost all the villages which are famous for their being the seat where the great *Avatár* Krishna held his gambols and dalliances, as are narrated in the sacred Puránas.

The temple of Lálá Bábu is by far the highest of any that are to

be seen at any of the holy places in the North Western Provinces. It has one minaret; and is built much after the style of the temple of Jagannáth in Purí. It is therefore not so beautiful to look at as the brick-built temple at Bánsbaria near Hugli, erected by Nrisingha Deb Ráy Maháshay, for the goddess Hansesori; but the Nátmandir or anti-temple is an elegant and noble edifice, and it displays an architectural skill which might do honour to an Italian architect. The Thákur Krishna Chandrimá Jí stands like a statue upon a marble pedestal inside the principal temple; and is the best engraved idol in all Brindában.

Having erected the temples, and endowed them with large estates, Lálá Bábu now thought of abdicating his worldly career, and thereby fulfilling his last and dearly-cherished object. Of all places in the district of Mathurá, Govardhan is a shrine which is regarded by the followers of Vaishnavism as the holiest. Umbrageous with the luxuriant foliage of ním and other trees, and secluded by the hills bearing its name, it is well calculated for the direction of the mind to the contemplation of the Deity. Lálá Bábu reparied to that spot. He had long heard of the fame of Krishnadás Bábájí as a true and devoted Vaishnava; and out of many yogí living at the time in Govardhan, he selected him for his guide to the mysteries of that faith.* Lálá Bábu thus became a yogí; and this circumstance created so deep an impression on the minds of the people of Upper India, that he was canonised as a saint. It is said that he never associated with, or talked to a worldly person after he had assumed the yogí's garb. An anecdote is related of him in respect of the intended visit to him by Parekjí. He sent to that celebrated banker to say that "if he would come with the dress of a Sunyásí, he would be welcome, otherwise not." The fact was that Parekjí had also a mind to retire from business and to become a Vaishnava; but when asked by Lálá Bábu to follow him he demurred and fell back. He found, perhaps, that wealth was sweeter to him than the life of an ascetic. Lálá Bábu had likewise refused to receive the Mahá Rání of Gwáliár, when she came to Govardhan. She, however, insisted upon making her obeisance to so pious a man; and he on attempting to fly from her, was trodden upon

* A gentleman connected with the family thus writes of Krishna Dás:—"In 1861, I had an opportunity of visiting that venerable old man. He was then giving lessons to his disciples, and though 101 summers had rolled over his head, yet he seemed to retain all the vigour of his great and elastic mind. He received me courteously; and knowing that I was a Bráhman, made a profound bow to me. Never in my life did I behold a countenance so deep in piety, so bland in meekness, and so calm and composed in philosophic sentiments, as his. He gave me a graphic account of Lálá Bábu and the accident that caused his death. Krishna Dás died at the age off 103."—S.K.L.

by one of her horses—which deplorable accident was the cause of his death. It was deeply regretted by the Ráni; and she mourned for it all the days of her life.

The name "Lálá Bábu" was given to Krishna Chandra by his grandfather, Gangágovind. It is an endearing title, commonly used in addressing the Kayasthas of respectability in the Upper Provinces.

Srínáráyan Singh was left a minor when his father Lálá Bábu died. The management of the estate during his minority was vested in his mother, Ráni Kátyáyaní The Board, however, finding the property too extensive for a zanáná lady to manage properly, took it under its direct supervision; and appointed Bábu Bhagabán Bose, a near relative of the Ráy Chaudhri family of Takí, as manager; leaving the Ráni to act as guardian to the minor. Srínáráyan purchased Bhuluá in Tipperah. The price paid for it was three lakhs. The money not being forthcoming at the time, it was borrowed from Bábu Raghu Gosvámí of Srírámpore, through his favourite officer Rámchánd Láhirí. Bhuluá is now the largest and most valuable estate in the possession of the family.

Four annas of the estate had belonged to Gangágovind Singh. The remaining twelve annas, having been put up to sale for arrears of revenue, was purchased by Srínaráyan Rishi for the sum of Rs. 2,38,000. But the sale was cancelled by the Commissioner. The property, however, was again put up to sale by Mr. Halliday, then Collector of Noakhálí, and purchased by Srínáráyan in the name of Dwárakanáth Tagore, his friend. Srínáráyan was a huge mass of flesh; he was therefore incapable of performing any thing requiring bodily exertion. Notwithstanding the strict injunctions of his father, his education was much neglected, and he was left to do what he liked best. He directed his attention to the study of music, vocal and instrumental, which he was very fond of; and very soon became a proficient in that art. He had only a superficial knowledge of Persian; but he could speak Hindustáni and Urdu with a grace and elegance which might do credit to an accomplished Muhammadan of Dehli or Lucknow. In his time the orchestra attached to the idol's house at Kándi was considered the sweetest in the country, even surpassing those in the Nizámat. Srínáráyan used to celebrate the annual Rash ceremony of the idol with much pomp; and gave in charity on every such occasion large sums of money. He died quite young, and not without a suspicion of having been carried off by poison.

Ráni Kátyáyaní purchased, or rather took in liquidation of the sum of three lakhs of rupees due to her by Dwárakanáth Tagore, the lot Jogadispur in Hugli. Potatoes as well as sugarcane are

own on this estate. She also purchased ten annas' share of rganá Amarábád in Noakhálí from the Mukarji family of Bág-zár in Calcutta.

The Rání expended 16 lakhs in charities. She celebrated at the mily house, at Belur near the E. I. Railway Station of Bálí, the remony of Anna Meru or Mountain of Rice. There were immense ounds of rice, and ponds of ghi for the entertainment of the visi-ors. Pecuniary presents were made to the Pandits of the cele-rated Samájas as well as to other Bráhmans. The ceremony cost 0,000 rupees.

Srínáráyan married three wives, of whom the second died in s life-time, leaving two daughters. He died, giving his wives ermission to adopt according to the provisions of the Hindu Law. he elder wife adopted Pratápchandra Singh, and the younger swarchandra Singh. But by virtue of Srínáráyan's will, his nother, Rání Kátyáyaní, continued to manage the property. ome time after the adopted sons had arrived at their majority, on he recommendation of Mr. Bushby, the then Secretary to the Gov-rnment of India, the Rání consented to give up the management n favour of her adopted grandsons. Prataṕ Chandra Singh proved worthy representative of this distinguished family. His career was career of benevolence. The Fever Hospital which has proved uch an inestimable boon to the sick poor of the metropolis, is a triking evidence of his munificence. He contributed Rs. 50,000 owards the erection of the hospital; and Lord Dalhousie, who laid s foundation stone, was so much pleased with his gift, that he al-uded to it in most laudatory terms on that occasion. For this and ther benefactions His Lordship conferred on him the title of Rájá áhádur. The sanad is dated the 20th April 1854, and is couched n flattering terms in the Persian language.

The investiture was held at Government House, when the late ahárájá of Páttiálá and many others of high rank were present.

Educational and other institutions, having the good of the coun-ry for their object, received the countenance and support of Rájá rataṕ Chandra Singh. He established a school at Kándi in 1859. t is entirely supported by the Kándi family, and is a well-conduct-d institution. There is a fine library in connection with the school. It is largely used by the masters and the advanced pupils. Be-sides the Kándi school, there were several other schools and átsálás which he supported. There was, in truth, scarcely any ducational institution in the metropolis requiring his aid which did not receive it. Of female education the Rájá was a strenuous nd bold advocate. He strenuously supported the female schools stablished in his time by Pandit Iswar Chandra Vidyáságar. He not only advocated the public education of Hindu females, but supported the zanáná system, as suitable under certain special

circumstances. He employed a governess in his own family, and used to devote three hours every day to giving lessons to his daughters. He was a warm supporter of the widow marriage movement, and contributed munificently to the furtherance of it.

For the revival of the Hindu Drama in Bengal his exertions were unflagging. The Belgáchia Theatre was established by him and his accomplished brother, Iswar Chandra Singh. It proved a great success, and largely contributed to the improvement and extension of the drama in this country.

The public associations and institutions of the metropolis received his active co-operation. He was the Vice-President of the British Indian Association, Agricultural Society, Vernacular Literature Society, Bethune Society, Dalhousie Institute, District Charitable Society, &c. It was, however, with the British Indian Association that the name of Rájá Prataáp Chandra Singh will be inseparably connected. He was one of the founders of the Association, and it was at his mansion that the inaugural meetings were held. He was appointed the senior Vice-President of the Association in 1861, and subscribed three thousand rupees per annum to its funds. This was irrespective of his donations to other objects in connection with the Association. As a Vice-President and Member of the Committee, he evinced a lively interest in their deliberations. When the Flogging Bill was under consideration, Rájá Prataáp Chandra Singh remarked that he regretted very much that the measure had been again revived in the Legislative Council. "Not six months ago this Association took occasion to protest against its policy, and to point out its injurious tendencies; and when the clauses relating to it were omitted from the Penal Code, he for one thought that this attempt at retrograde legislation would not again be resorted to. He would therefore urge the Association to represent to the legislature in the same spirit the prejudicial effects which the enactment of the measure under notice would produce upon the people. He accordingly moved :—

That this meeting considering the revival of punishment by flogging to be extremely demoralising in its tendency, and consequently incompatible with sound principles of penal jurisprudence, resolves, that a petition, expressive of the above sentiments, be addressed to the Legislative Council, relative to the Bill prescribing corporal punishment in certain cases."

A great public meeting to petition for the extension of the criminal jurisdiction of the Mofussil courts was held in the town of Calcutta on Monday, April 6th, 1857. "The resolution asserted a principle of vital importance to the character and influence of National Law—that of perfect equality as respects the individual offender, equality as respects penalties, and equality as respects the forms of administration and the nature of tribunals."

There was scarcely a movement for a public object initiated in the metropolis or in the metropolitan districts which did not receive his countenance and support. Appeals from the mofussil for the establishment of schools, the construction of roads and the excavation of tanks were frequently made to him, and always with success.

The merits of such a man were fully appreciated and were rewarded by the Government. He was appointed one of the four native members of the Legislative Council of Bengal, on its formation. When Mr. James Wilson thought it necessary to impose the Income-tax, Sir John Peter Grant appointed him a member of the Income-tax Commission in order that his presence and counsel might smooth the operation of the impost. There was scarcely a committee of a mixed character of which he was not appointed a member by the Government. He was in truth, considered one of the representatives of his nation. In recognition of his merits, Her Majesty's Government conferred on him the Star of India; and it was also in contemplation to appoint him a member of the Imperial Council, but he was cut down in the prime of life.

Except Táluk Gopálpur in Midnapur, and bits and parcels here and there, most of the estates in Bengal have been let in *Patni*. The leases of the estates in *Patni*, commenced with Rájá Pratáp Chandra's adoptive father, Srínáráyan Singh, inP erganá Bagaun in Nadíyá.

During the time of Rájá Pratáp Chandra a good deal of money was spent in litigation. Rádhá Krishna and Govind Rám, the largest bankers* in the Upper Provinces, are the proprietors of the idol Parswanáth. Now, the Thákurbárí of the idol adjoins that of the idols set up by Lálá Bábu at Brindában. During the mutiny the bankers had erected a mound before the two Thákurbárís for protection from the encroachment of the rebels, which they refuse to raze to the ground after the mutiny was stamped out. On this Rájá Pratáp Chandra sued them first in the Zillah Court, and then in the Sadar Court at Allahábád, which decreed the case to him. But the costs of the suit, a small portion of which he only received, amounted to a lakh of rupees. Another great case, brought by him against the Watsons, cost him a great deal of money.

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* These two were the younger brothers of Lachhmí Chand Seth who got the hoarded wealth from Párakjí alluded to above. This Párakjí was the General of the army of Sindia. Having acquired immense sums of money, and falling out with the chief, he fled to British territories and settled in Mathurá; where, as well as in other places, he commenced a banking business on a most extensive scale. Being childless, he, on his death-bed, made over all his properties to Lachhmí Chánd who was the son of a favourite *Gomashta*, Mongurám.

There are two large estates in the Upper Provinces belonging to the Kándí House, *viz.*, Anúpshahr in Bulandshahr, and Hatwá in Mathurá. The proceeds, aggregating four lakhs, are applied to the *Seba* of the idols established by Lálá Bábu.

Rájá Pratáp Chandra had faults. He was reserved and his manners were stiff. He had not the power of small talk. But he was all warmth within. He was once called by a friend, "a volcano capped in snow."

Neither were his charities, either public or private, stinted. An anecdote is related of him which shows how deeply his mind was imbued with the desire of redressing the distresses of other people. One day he had had to go to Titaghar near Barrackpore on a visit to a member of the Board of Revenue who was about to retire from the Service. On the way he had to stop for relay. A number of mendicants surrounded him and begged for something. He searched his pocket in vain, and was greatly vexed at his chaprási for not having put money there as usual. One of his principal officers, who was with him, remarked that these men might not be real beggars, to which he at once said, "that is a Young Bengal idea, what business have I to pry into their affairs?—they came to me in the garb of beggars and I took them as such." He then went to a shop-keeper close by, and actually borrowed five rupees which he distributed among the beggars!

The loss of such a man was regretted by all classes of his countrymen. At a general meeting of the British Indian Association, held on the 31st of July 1866, the Chairman moved the following resolution: "That this meeting desires to record its deep sense of regret at the untimely death of Rájá Pratáp Chandra Singh Báhádur, C.S.I., a Vice-President of the Association since its foundation, whose career has been marked by princely liberality and enlightened benevolence, by zealous exertions to promote the interest of this Association, and by entire devotion to the cause of Indian amelioration." The resolution was seconded by Bábu Digambar Mitra and was unanimously carried.

Bábu, now Rájá Jatindra Mohan Tagore, moved the next resolution which was as follows:—"That in commemoration of the valuable services rendered to this Association by the late Rájá Pratáp Chandra Singh Báhádur, C.S.I., a memorial in the form of a portrait be raised by means of subscription from among the members of the Association, and that the portrait be hung in the Hall of the Association."

Pratáp Chandra purchased six-annas share of Perganá Bábupur in Noakhálí and also the lot Kagash in Bírbhúm, as well as Belgáchíá Villa from the trustees of Dwárkanáth.

We have alluded to the brother of Rájá Pratáp Chandra Singh in connection with the Belgáchíá Theatre, and have

called him accomplished. But Iswara Chandra Singh was more than accomplished. He was a high-minded and large-brained young man. He was singularly free from the prejudices of position or rank, and treated all men alike ; his manners being polished and perfect. His conversation was rich and sparkling. He was one of Nature's noblemen ; and those who knew him, best appreciated his guilelessness. He was a keen sportsman and was a warm patron of the Calcutta Turf. He used to contribute to the *Indian Field* in its sporting columns under the Editorship of Mr. Hume. He was the Secretary to the British Indian Association for several years ; and both his portrait and that of his brother now grace the hall of that body. He also died a premature death during the life-time of his brother.

One great act was done by Iswara Chandra for which he ought to have been thanked and rewarded by Government. When the mutinous spirit of the Bengal Army had spread to the solitary regiment at Chittagong, Pratáp Chandra was absent from Páikpárá, and Iswara Chandra, therefore, took up the business of the Káchhárí. When the news came to him, that the regiment had risen and was about to come down to Bhuluyá for the purpose of *looting* the Government Treasury there, he at once sent orders to his agent, Jasodá Kumár Páin, to collect all the able-bodied men in his zamíndárí arming them with guns and swords, and to save the treasury at any cost. He also instructed him to do every thing in accordance with the advice of the Collector, and to assist him by all means. The Bhuluyá Káchhárí house being well walled, the treasury was removed to it, and the Collector thought of making it a garrison in case of a sudden attack of mutineers. The agent did all that he was ordered to do by Iswara Chandra. The mutineers, however, had heard all that was being done in Noákhálí ; and being conscious of their weakness in point of number they wavered and took a different route to join their brethren in other parts of the country. Thus Noákhálí and the neighbouring districts were saved ; Iswara Chandra's agent was presented with a watch by the Government, but no further notice was taken of his loyal conduct.

When the rumour of the Barrackpore mutineers being about to make an attempt upon Calcutta was in everybody's mouth, Iswara Chandra kept in his service for more than a month a large number of seamen with a view to guard the road as well as to protect his house at Páikpárá. The late Mr. Dampier was then residing at Kásipur, and he and Iswara Chandra used to sit together every evening under a tree to witness the parade of the men. In fact, throughout this period, he as a loyal subject was all activity to allay the widespread panic both at home and abroad. The preparations he made on the occasion cost him more than eight thousand rupees.

It is deeply to be regretted that in the untimely death of the Rájá and his amiable brother Iswara Chandra, the public have been deprived of the benefit of two grand projects which they had conceived and nearly matured. These were,—first, the opening of a branch railway from Sinthiyá to Kándi, a distance of about 22 miles; and, secondly, converting their extensive garden at Belgáchyá into a park. Their vast wealth as well as their noted liberality in all matters of public utility was a guarantee for the fulfilment of what they had in view.

The following is a list of the principal estates belonging to the Kándi family :—

Parganá Balluya „ Amirabad „ Babúpur	}	Noákhálí.
„ Naldi	...	Jessor.
Taraf Tulsipur	...	Rájsháhí.
„ Shásan and other small lots	}	24-Parganás.
Parganá Bogaun	...	Nadiyá.
Lot Vishnulakshípur	...	Burdwan.
Táluk Gopálpur	...	Midnapur.
Lot Juyi „ Srihati „ Dhaliyá „ Kagash	}	Bírbhúm.
Taraf Sáktoriya and Sádipur	...	Burdwan.
Parganá Rádháballabhpur Kijmat ditto	}	Murshídábád.
Bhalagáchi Kásimpur Amnagar	}	Dinájpur.
Raghupore Rauniyá	}	Purneah.
Parganá Rahung „ Chabúkud „ Sire	}	Cuttack.
„ Anúpshah	...	Bulandshahr.
Taraf Alampur	...	Alígarh.
„ Nandarám Mathurá and about 13 other lots	}	Mathurá.

There are also many other estates in Faridpur, Rájsháhí, Máldah, Hugli, and Púrí.

The total sadar jamá paid by the Kándi family is Rs. 4,75,413. The estate in Púrí district yields a *malikáná* of Rs. 6,751.

Parganá Baluyá comprises an extensive tract of country, embracing the whole of Thánás Baluyá and Lakshmípura and

parts of Thánás Rámganj, Begamganj, Amírgaón, and Bámani, and also part of the island of Sandwípa. It has an area of 9,32,500 bighás or 310,833 acres. It is intersected by numerous rivers and *kháls*, which greatly facilitate intercommunication within the parganá. It is subject to inundations by the annual overflow of the Megna; as also by the sea, which does not apparently injure the crops. In the rainy season it is entirely submerged by water, and communication is kept up by means of boats of a peculiar construction called *kandá*.

The parganá is subdivided into numerous petty estates, chiefly let in *patni*. The soil is extremely rich in alluvial deposits, and the process of manuring is unknown. The cultivation of rice is the chief pursuit of the people; who are mostly Muhammadans of the agricultural class. The staple produce is rice of a coarse kind; and cocoanuts are largely grown. The early crop of rice is sown in Baisák and reaped in Srában; the latter crop is sown in Srában, and reaped in Kártik. The process of cultivation is extremely rude and simple. On the subsidence of the water, the ground is scratched by a thin iron, which serves as an apology for a plough; and the seed-grain is then scattered broadcast. Weeding is out of the question, for the land is soon after covered by water; and such is the luxuriance of the crop that it chokes any other growth. The rayat again returns in his boat when the crop is ripe, and only the ears of the corn are gathered in, leaving the straw to rot in the water and be converted into manure for future crops. The yield per bighá averages nine maunds; and the total outturn of the whole parganá is approximately estimated at 42,00,000 maunds. Part of the produce is exported to Calcutta and Chittagong. The coarser sorts in ordinary seasons fetch a price of Rs. 1-8, the finer Rs. 2. Next to rice, cocoanuts are produced in abundance, and are exported to Dacca and Calcutta. The ordinary indigenous pulses and oil-seeds are also cultivated on lands raised above the level of inundation, but the yield is barely sufficient for local consumption. There are no pastures anywhere within the parganá, owing to its annual submergence; and as a consequence the cattle are lean and poor.

Among local manufactures we may mention chikní, a kind of matting manufactured from reeds.

The chief *entrepots* are Baluyá, Lakshmípurá, Bhavánígaṅj, and Rámpur. A brisk inland trade is carried on with Dacca, Maímansingh, and Chittagong. The principal imports are mustard-oil and salt.

One-fourth of this large estate was purchased by Gangágovind Singh in 1208 B.E. But the whole parganá came into the hands of his successors in 1243. The history of its acquisition

is somewhat striking and worth preservation. As it was simply impossible to induce the many proprietors of the other three-fourths of the estate to sell their rights, Srikrishna Singh withheld the payment of the sadar jamá for the one-fourth of which he was master. Thus the whole estate was put up to auction and sold for a sum of Rs. 2,76,000. The nominal purchaser at the auction-sale was our renowned townsman, Bábu Dwárkanáth Tagore. The sadar jamá of this princely property is Rs. 1,49,202. The present estate of Baluyá includes 47 other minor estates of which Amirabad, Bábupur, Chár Fakíra, &c., are the principal. For these a further sum of Rs. 1,24,000 was paid as purchase-money.

Under the management of the present proprietors, 25 primary schools have sprung up within the parganá, the expenses of which are entirely defrayed by them. There are also five vernacular schools which receive aid from the Paikpárá family. A night school for adult labouring men, a girls' school, and a school of carpentery, are also supported by them. There is a higher grade zillah school at Baluyá, under the direct management of Government. A dispensary has been established at the sadar station of Noákhálí which receives a monthly grant of Rs. 50 from the zamíndár. For the improvement of the estate an embankment has been thrown up at a considerable expense at Nilu Khaí to prevent the encroachment and inundation of the Megna. We understand there are other embankments erected entirely at the expense of the zamíndárs. As regards the antiquities of Baluyá, there is an ancient temple dedicated to Jaí Dúrgá and supported by a grant of land. The idol is carved out of black marble. It is the common belief of the people that when the goddess perspires it portends some dire evil impending the family of the zamíndárs, and it is said that the belief was verified in the untimely demise of the late Rájás Iswar Chandra and Prataáp Chandra Singh and their step-sister.

Parganá Naldi at one time formed part of the ancient Parganá of Bhúsná, which belonged to the celebrated Rání Bhaváni of Nátor. It was purchased by Pránkrishna Singh at a sale for arrears of revenue in 1861, for a sum of Rs. 67,500. It comprises a large part of the subdivision of Narail and runs a good way into the subdivision of Magurá. It has an area of 725 square miles, or 484,582 acres. The present sadar jamá is Rs. 73,303. Rice and sugar are the staple produce of this parganá. The raw material for sugar comes mostly from Khájura and is exported to Nalchitti. The chief imports are salt, timber, cotton, lime, betelnut and tobacco. The inhabitants are chiefly agricultural, with a sprinkling of petty traders and artisans. There are a number of primary schools scattered throughout the parganá

receiving from the proprietors a grant of 501 rupees. The school at Lakshmípur receives a grant of Rs. 60. The dispensary, which has proved a real boon to the sick poor during the late epidemic, receives a contribution of Rs. 120.

Since the management of the estate passed under the Court of Wards, a valuable addition has been made to the property of the Kándi family. In 1871-72, Parganá Mohimsháhr was purchased for a sum of Rs. 3,64,500. It pays a sadar jamá of Rs. 17,204. It is an ancient parganá once owned by the famous Ráni Bhaváni, it then passed into the hands of Madhusudan Sanyal of Faridpur. The parganá is comprised within the Thánás of Pangsá, Belgáchi, Bázárganj, Magurá, Fakírabad, and Kushtiyá, which belong to the subdivisions of Magurá, Kushtiyá, and Goalando. It has an area of 1,11,527 bighás; of which nearly the whole is under cultivation. It produces rice, and sugarcane which is converted into gúr; it contributes Rs. 157 towards the support of primary schools.

Here we may explain the connection of the Rossarah family with that of Kándi. Krishna Chandra Singh, *alias* Láiá Bábu, espoused the daughter of Gaur Mohan Ghosh, the celebrated Ráni Katyáyani Her brother, Krishna Sundar Ghosh, had three sons, *viz.*, Gopí Mohan Ghosh, Hari Mohan Ghosh, and Rám Mohan Ghosh. On the demise of her son, Srínáráyan, his two widows at the instance of Ráni Katyáyani adopted Hari Mohan Ghosh and Rám Mohan Ghosh as their respective sons under the altered names of Pratáp Chandra Singh and Iswar Chandra Singh.

The following is an account of the Thákúrbári at Kándi:—

"Of all the shrines, the one at Kándi is maintained with the greatest liberality. The god here seems to live in the style of the great Moghul. His musnud and pillows are of the best velvet and damask richly embroidered. Before him are placed gold and silver salvers, cups, tumblers, pawn dans, and guges all of various size and pattern. He is fed every day with fifty kinds of curries and two kinds of pudding. His breakfast over, gold hookas are brought to him to smoke the most aromatic tobacco. He then retires to his noon-day *siesta*. In the afternoon he tiffs and lunches, and at night sups upon the choicest and richest viands with new names in the vocabulary of Hindu confectionery. The daily expense at this shrine is said to be Rs. 500, inclusive of alms and charity to the poor. In Kandi the Ras *jattra* was at its height and illumination, fire-works, nautches, songs and frolic were the order of the day, and followed upon each other. The Ras mandala was a miniature of the Hindu Pantheon. It was interesting to see there the representatives of the principal characters of the Ramayana and Mohaburat, in well-executed life-sized figures. There was Ram breaking the bow

in the court of Jonaka. There was Arjoona trying his archery to carry off Dropoddie. The Rishis and Pundits of Judisthira's *subha* had very expressive features. The greatest attraction of all was possessed by the fine figures and faces of the Gopeerus. More than twenty-five thousand people were gathered at the *Mela*, and the sum of ten thousand rupees was expended by the Rajahs to celebrate the festival." This account is from *The Travels of a Hindu*, by Bhola Nath Chunder, p. 66.

After the death of Rájá Pratáp Chandra Singh in 1866, the estate passed under the Court of Wards. A European gentleman was appointed manager by the Court on a salary of Rs. 1,000 per mensem. The estate has continued to prosper under his management. With a view to clear off the debts and liabilities incurred during the life-time of the late Rájá, Shijamut in Midnapur was sold for Rs. 5,25,000 ; the estates is now free from all involvements and a valuable addition has been made to it by the purchase of Parganá Mohimshahr in the district of Faridpur, already mentioned. The elder Rájá left four sons, of whom all but the youngest have attained their majority. Rájá Iswar Chandra Singh has left an only son. Liberal arrangements have been made for their education, which is superintended by a distinguished European officer.

The town of Kedarpur from which the family takes its name, is situated in Tháná Bhartpur in the sub-division of Barhampur. There is a palatial residence belonging to the family, with temples, alms-houses, &c., attached to it. The family idols, Rádhábállabh and Gobindjí, have at present an assignment of Rs. 12,000; besides a sum of Rs. 5,000, which is expended on the entertainment of guests and all comers. Formerly the expenses of the Thákúr were unlimited.

ART. VII.—FAITH AND FATE.

AN indigo planter, a man well acquainted with natives and their ways of thinking, and of whose honesty and common sense I have the highest opinion, once told me a strange story. A ryot of his, a gowala if I remember aright, came to his factory one day to all appearance quite calm and self-possessed, but in a most unwonted hurry to settle his accounts, since, said he, he must die that night. His idea was that an old witch, a woman who owed him a grudge, had sent a 'bhoot sampa'—a ghost snake—to bite him; that, as it were in a dream, the night before he had seen this bhoot sampa approach and bite him; that he had immediately awakened, cold and clammy, with full knowledge of what had happened, and firm conviction that he must die. Here, observing my informant smile, as if incredulous, the man stretched out his hand, "see the marks of the bite," he said, showing two minute punctures on his finger, certainly very like those that would be left by a snake's bite.

Pretending to observe these more closely, my informant ran the pin of his chimtas sharply into the man's arm, who started back evidently hurt, while a drop or two of good red blood soon showed on the wound. His experience was appealed to as to whether such sensibility to pain or such good red blood would exist after the bite of a poisonous snake; he was reminded that, if haply not death, some ill effect of the venom must inevitably have followed such bite by that time—whereas he was as hale and well as ever he had been in his life. He was laughed at, he was bullied, but nothing could shake his belief, and he went home and died that night about the time at which he supposed that the bhoot sampa had bitten him the night before. That his belief in the causes which led to his death seemed in nowise extraordinary to his caste fellows may be inferred from the fact that they took an early opportunity to make away with the old Dyne who was supposed to have caused the mischief. That the man was bitten by some harmless snake seems probable, and is so far material that the two punctures on his finger undoubtedly served to strengthen, and give consistency to, his preconceived (howsoever conceived) idea of the fate awaiting him. But of what did he die? Probably the doctors, in properly technical language of course, would say of fright. One can understand that easily enough; but I think one can understand too that in this instance fright would simply be an equivalent for 'faith.' Dare one say strong faith sublimated and become fate?

I have lived for some years in out-of-the-way mofussil places where, the spread of charitable dispensaries notwithstanding,

the people certainly do not take kindly to English medicines, and I have a notion that if a native, at first instance and not after every other help has been tried and failed, comes to a Saheb's bungalow for medicine, it matters very little what doctors' stuff, or what stuff not of the doctors, he gets as a remedy. It will do him good. I can only suppose he has faith in it—as evidenced by his rising superior to the prejudices of his class and coming for it—and that here again faith compels fate. Often has the camphor and chalk of my tooth powder, tempered may be with a little whitewash, scraped off the wall, proved as efficacious as quinine. Often have I found bread pills valuable curative agents in illnesses I knew nothing about. I was visiting at a friend's some two or three years ago, when an old fellow hobbled up with a long-winded complaint of a complication of diseases, which, as I did not understand them, I will not try to describe now. Suffice it to say that he thought himself very ill; and looked it. S. C. my friend was modest, and fain to tell the old fellow 'non possumus'; but thinking that that would be a pity, I went into the dining-room, emptied the fluids out of the cruet-stand, Worcester sauce, mustard, vinegar, and so on, into about a quarter of a bottle of stale beer; and shaking everything well together, told him to drink a tea-spoonful every morning as soon as he woke up, and another at sunset. Three weeks afterwards I heard that he was cured, and blessing S. C. and me. Now, certainly I do not know what may be the medicinal virtues of Worcester sauce, mustard, vinegar, and stale beer combined: perhaps therefore I wrongly ascribe this cure to faith. I think it was in 1869 that I began to have a glimmering of this connection between faith and fate. Cholera was very virulent round and about where I lived; and some pills obtained from the district dispensary proved to be so very successful as a cure, that at last the village folk got to believe in them as a panacea, and would beg a 'golee' for cases of fever, or rheumatism, or indeed, as it seemed, any illness with which they happened to be afflicted. The climax appeared to have been reached when a widow woman begged a pill to bring back the wits to her son who was an idiot; but a more notable example of faith was yet to arrive in the person of a gowalla who would have had me give one of the redoubtable pills for his cow, which had been bitten by a mad dog. Not being determined as to the value of such vicarious faith, and hesitating to endanger my reputation as a Hakím, I declined both suggestions. Was I wise, I wonder sometimes, now that such chances have gone past, and I, moss-grown milestone, have not got written on me all the information that might have been there to guide travellers?

I fancy I can conceive of faith so unswerving, so strong as a motive power, that it might well move mountains. The difficulty

to my thinking would be, not in moving the mountain, but in working up the requisite amount of faith. To educated men, prone to look to cause and effect, it would certainly be impossible; to average conventionality, used in effect to believe that "whatever is, is best" still more so; while to the crass ignorance with which alone such superstition seems compatible, it would certainly never occur to will to move mountains. And given the will even, such Titan emprise might well frighten, and so kill faith. Still, as an abstract possible, I incline to believe in a faith that can move mountains; as more surely to the belief that, in less apparently impracticable undertakings, strong steadfast faith may, notably with the ignorant and credulous, and under certain conditions of which we know nothing, develop into fate. Surely such power of faith would be no more astonishing than some of these latter day triumphs of mind over matter?—in the form of electricity for instance.

I am told it has been proved that an electric current can pass through the waters of a running river from bank to bank without any other connecting link than two zinc plates placed opposite each other, one on each bank. Who dare say that he *knows* how this is brought about? People theorise, and guess, and grow to have faith in their thoughts; but of such subtle occult sympathies as go to make up this motive power they cannot know. And who can tell what is the orbit, or what the limitation, of these sympathies? Is there any precise reason to be given why faith should not be able, in some fashion inscrutable to us at this present, to coerce them to its purpose? Can we say with absolute certainty that it did not do so in the old-world days of mysteries and miracles, when science was almost unknown, and sturdy ignorance, unblushing, unwitting of any other state, and so sublime in its confidence, dominated the crowd, and cowed thought? Even in this our time of enlightenment and education, miracles are wrought by faith. Take the late appearances of the virgin in Alsace and Lorraine for instance. I certainly prefer to think that the simple peasant people do see, or fancy that they see, which amounts to exactly the same thing, those appearances they tell us of. I prefer this thinking to the alternative belief that a great many heretofore honest people have combined to establish a cruel cheat: and, pros and cons considered, it seems to me more reasonable so to think. Again, as to that vexed question of spiritualism! It has grown into a business, a profession; and that in the profession there are many liars, very many humbugs, outside of it very many dupes, I make no doubt. For that matter, it seems to me too ridiculous that spirits wishing to communicate with this earth should choose for their communications such media as chairs and tables. But I cannot think all believers in spiritualism either dishonest or dupes; and must believe that some of them see and

experience, whatever it may be, through faith. Certainly spiritualism is no mighty development of faith: appearances of the virgin in Alsace, truly no great miracles! but, in the way of miracles, they are probably as much as could be expected of the faint possible belief that is so much the fashion now-a-days. Read by the light of Prince Bismarck's fears, these Alsatian miracles at least seem to show that faith is not altogether contemptible as a motive power—that is to say, as, in more or less degree, pushing fate along in the way that it wills.

JNO. HOOLEY.

Art. VIII.—CHRONICLES OF SOUTHERN INDIA.

Part I.—The Coast of 'La Pecherie.'

ENGLISHMEN are too apt to forget, or if they remember, to despise, the influence that has been exerted on the destinies of India by their European predecessors in this country.

The present plight of Pondicherry and Karikal and Chandernagore clouds the memories of the great nation from whom we hardly won India. Goa is a Nineveh of churches and colleges; a heart without a body; a capital without a country. Thus the territories of European nations in India are for the most part regarded by Englishmen as a blot on the symmetry of the map; an annoyance to the revenue official, and a thorn in the side of the custom house; of which the only present use is to shelter absconding debtors, and to serve as a depôt for cheap wines. It is most doubtful whether any man who has yet tried to write the history of the English settlements in India, has taken sufficient account of our European predecessors. The Portuguese and the Dutch were up and down the coast for centuries before the English name was a power in Southern India; and Jesuit missionaries counted their disciples by the thousand before the English trade with India was founded, and when not half-a-dozen Englishmen had visited Hindustan.

To know the history of the Jesuit missions of Southern India, is to have a glimpse of much of the internal state of the surrounding country during more than three centuries. And those only who have tried to lift the darkness that shrouds those not far distant days, know how dense is that darkness, and how grateful is light that beams on it from any source. Nor is the record of these faithful exiles without an intrinsic merit that entitles it to general attention. The story of any men will find readers, that tells how lives were devoted, how brilliant talents were spent, and bitter trials and death itself endured, in the cause of the purest faith the world then knew, and to win souls from a darkness which seemed deadly, to life which was believed to be eternal. The names of Xavier, De Nobili, and Beschi throw lustre on all that records their deeds and words.

Xavier, the saintly enthusiast, who compassed the world in his ardour to win souls: whose zeal burned so fiercely that it was not in his power to sit him down and work calmly among a congregation, teaching and preaching like other men; but he must found a church and baptize a crowd, and pass on: leaving the vessel afloat, for others to guide, and the foundation laid on which humbler men tried to build.

Then came De Nobili, the high-born Italian gentleman, of stately presence and not less towering talents; who in his anchorite's cell became a Bráhman of a purer creed—the sannyási of Christ, and not of Siva; and who, in adopting the maxim of the first great missionary that he should 'be all things to all men,' stumbled over the obstacle of orthodoxy, and fell; through the jealous opposition of smaller men, who could not see the human wisdom of his adaptive faith. Again the torch was taken up, and handed on by the poet Beschi—the great Sanskritist, to whom the priestly lore of the Hindus was as familiar as his own missal, and who confounded both poet and grammarian by the fluency of his composition, and the scholarly accuracy of his style.

And while these brilliant luminaries dazzled men's minds, many another won the hearts of humble disciples, not so much by the constancy of their courage, though this was often tried, as by the humility of their presence, the purity of their lives, and the manifest disinterestedness of men whose kingdom was not of this world, who carried neither purse nor scrip, and whose highest ambition was to found a church, and their keenest joy to save a soul.

Some too were faithful unto death. De Britto obtained, as he desired, the crown of martyrdom from the bigotry of the Prince of Ramnad, the head of the Maraon tribe; and De Vieyra pined in the prison, and was only saved by the superstitious fear of another prince of the same line. It is written on every page of the narratives of these simple faithful missionaries, that they went up and down the country with their lives in their hands; exposed constantly to the fury of wild beasts, and at times to the passions of men more cruel still. It is not, however, to weave a tale of sensation and marvel that we search this record of the past. The age of miracles has passed with that of chivalry: and though Xavier cured the sick and raised the dead; and hardly a single missionary but has his tale to tell of miraculous cures, and conversions, and interpositions of supernatural power; these triumphs of faith may be left to those for whose benefit they are recorded; and we shall gratefully glean only the historical atoms that strew these pages.

The period of years with which the story deals lies between the year 1540 and our own time. An unbroken chronicle for these last 300 years for any portion of India is so rarely found as to be invaluable. The meagre jottings of the first heads of the English factory are almost barren of national information and interest. But in the letters from the Jesuit missionaries of Southern India, we have a contemporary chronicle compiled not by interested officials nor by prejudiced Englishmen, but by gentlemen and scholars, who, as they hoped nothing

for themselves from princely favour, cared little to conceal the truth about public acts; who, as they wrote to distant authorities at Rome, were secured beneath the veil of secrecy: and who, having adopted this country as their home for life, and its people as their children in Jesus, were raised above the prejudice of race, and imbued with paternal love as well as with priestly zeal.

Such a chronicle is unique and full of value; but it may be difficult to knit into an intelligible story the scattered allusions, rather than statements, that light up the political history of the time. Let the attempt however be made. The verdict we must leave to our readers.

The empire founded by Vasco da Gama in 1503 had been securely established on the western sea-board of India at Vasco's death in 1515. Under John III. of Portugal, the national dream of universal conquest was fostered by the religious ambition of Loyola and his disciples, who hoped with a handful of enthusiastic teachers to convert the world. Among this band came Francis Xavier; but the record of his Indian mission is as brief as it is brilliant. Three short years he laboured on the Southern shores of the great continent, and then passed on to distant China and Japan; impelled by an ardour that no toil could satisfy, and torn by a restless hunger for new conquests, as keen as, but far purer than, that of the Macedonian Alexander.

The mission of Xavier to the Comorin coast began in 1543; and though one brief excursion carried him as far north as the present site of Madras, or Méliapur—then, as now, famous for the martyrdom of St. Thomas—his ordinary range lay between the Cape of Comorin and the point of the mainland opposite the Island of Ceylon.

Passing from Goa early in 1543, and staying among his countrymen and brother-religionists in Cochin, which was evidently subject to the Portuguese, he arrived in Tuticorin about May of that year.

Here his reception by the 'Pallawares' or pearl-fishers was so warm and kindly that he speaks enthusiastically of the "rich spiritual harvest" that he hopes to reap. The name of the caste or tribe here referred to, is properly *Paravar*—and they are now, as then, one of the most numerous as well as the most influential of the castes or tribes that people the coast.

Their chief occupation seems at the time of Xavier's visit to have been the pearl-fishery, for he says that they 'derive their means entirely from that source'; a statement which confirms an impression generally entertained that the condition of the pearl-banks of this coast is very much changed for the worse since those days.

To this subject we may hope to recur, after examining the political status of the country.

That the extreme end of the peninsula was then in the possession of the Travancore dynasty, is clear from express references made by Xavier to the authority of the King of Travancore, to whom he gives the extraordinary name of Iniquitribirim. But it is equally clear from his express statements, and from the events which he records, that a very real claim was constantly asserted by the Madura rulers, to the right of levying tribute within the Travancore territory. This is noteworthy, for the most careful record of Madura history places the independence of the Madura dynasty of Nayakkas as late as 1559; and treats the Governors of Madura up to that time as mere vassals of the tottering Vijayanagar house. According to the same record—we need scarcely say that we refer to Mr. Nelson's Manual of Madura—the name of Varataffa Nayakkan is given to the Governor of Madura in 1544, the year of the invasion of Travancore; and the first of the independent line is stated to have been Virvanada Nayakkan who came to the throne in 1559.

However this may be, the inference is irrefragable that the ruler of Madura, whether his power was independent or derived, was titular and actual sovereign of the whole Southern India Peninsula as far as Cape Comorin. How far the dominions of the Travancore dynasty then extended is hardly clear; but there seems to be no reason to think that they stretched further to the N.-E. than they now do, for the ravages of the Badages (of whom we will presently speak) did not reach so far as Manapadu, which lies twenty miles to the south of the mouths of the Jambrapurni river in the Tinnevelly district. The country along the coast to the north of Travancore was locally administered by a number of petty chiefs, whose obscurity compelled them to obedience, and whose obedience secured them from the violent treatment which Travancore endured. Tala, a now ruined town in Tinnevelly, was in 1544 the seat of a petty Raja connected by kinship with the Travancore family; and he distinguished himself by his favourable treatment of the Jesuit missionaries and their converts. The days of persecution and suffering had not then been ushered in by political ruin and national disgrace. The name and fame of the Portuguese were a passport along the coast for every white man; the ægis of the Viceroy of John III. had power to conciliate the affections of every prince he protected, and to secure the life and fortune of every European whom the desire of gain or the fervour of religion impelled to travel in Southern India.

So, too, in Tuticorin; which three centuries ago was the headquarters of the Paravar tribe, and of their pearl-fishing industry;

a local Governor possessed a purely local influence; but the hand of the paramount power lay so lightly on these distant dependencies that the subject scarcely felt that he had a master.

The incidental touches of political colour that Xavier gives to his missionary chronicle are as interesting as they are faint.

The 'Governor' of Tuticorin is not named, nor described in any way; but as he is said to have been like a 'father to the fishermen, and they like his children,' it is more than probable that the Governor was an officer of the Paravar race—the Talevian or head man, who still asserts, though he scarcely exercises, a titular supremacy over the Paravars of Tuticorin. His power, however, must in those days have been very real and locally almost irresistible. Not only is he said to have protected the converts to Christianity and encouraged them in the faith, which he himself hesitated to join; but Xavier records how he succoured his tribesmen from the oppression of *Les Sarassins qui les inquiètaient.* The Saracens at Cape Comorin! one may well exclaim. But we suppose the mystery is hardly a mystery; for just as the Englishmen used to call every body who believed in Mahomet a Moor; so the Jesuit when he met the followers of the Prophet, thought of Saint Louis and Joinville's chronicle, and named them all Saracens, without respect for latitude or for race.

Thus from this bare allusion we may gather two facts—first, that Musalmáns had penetrated as far south as the Tinnevelly country early in the sixteenth century in sufficient numbers to assert for themselves a political existence; and secondly, that they were not in force sufficient to stand against the power even of this local chief of Tuticorin.

This is the only allusion we have noticed to the presence of the 'Saracens' along the coast, and they were evidently not nearly so formidable as the 'Badages' or marauding troops who ravaged the Travancore country in 1544. Who these so-called 'Badages' were, it is more difficult to determine; and the conjecture that we propose to hazard is put forward with the utmost diffidence. At first sight the word recalls the tribe, still known on the Nilgiri hills of Coimbatore, as 'Badaga,' a sub-division of the Toda and Tuluva race. But, apart from the geographical difficulty of transporting the tribe some two hundred miles to the south of their present home, it is ethnically impossible that a tribe, which now consists of a few miserable families, could, only three hundred years ago, have been a formidab lepolitical power. We know of no cause for such a downfall, and are, therefor, eobliged to reject the idea of such a former elevation.

A simpler explanation offers itself in the erroneous rendering of the word transliterated by Xavier into 'Badages.'

The Tamil word 'vadakku' means the north; and the

strangers who came from time to time to gather plunder under the name of tribute, were simply known as the men from the 'North.' To this day a stranger, whencesoever he comes, is said vaguely to come from the 'North'; naturally enough in this extreme corner of the land, in which all the roads point northwards. The frightened dwellers on the coast fled in terror before the 'northmen,' whom we may with every appearance of truth identify with the marauding troops of the Madura ráj; the Kallars or thieves; the *Colleries* of Orme: whose genius for the profession of banditti and cattle-lifters made them the dread of English troops two centuries later; and still survives to the perplexity of policemen, and the grief of magistrates.

The 'Kallar,' and their kindred in origin and habits the 'Maravar,' poured in 1544 over the Passes into Travancore, and literally swept the coastmen into the sea.

From Manapadu in the month of June, Xavier writes that he has just learned this disaster which has befallen his flock.

Les infortunés sout dispersés et trainés en captivé par les Badages. Le reste s'est refugié dans les creux des rochers qui dominent la mer.

And, in a letter soon after, he writes that his 'unhappy converts, terrified at the approach of the Badages, those furious enemies of Christianity, have abandoned their villages and have gone to seek an asylum on the desert islands among the rocks.' It may be doubted whether the plundering invaders knew of, or cared much for, the conversion of these coastmen to Christianity. The invasion was directed against the King of Travancore, who was no Christian; and those who became its victims were his subjects, Christian and heathen alike. This is clear from the fact that the invaders did not extend their ravages beyond the Travancore marches. At Manapadu the Christians found themselves safe, and there Xavier welcomed and consoled them.

The King of Travancore meanwhile was too weak or too indolent to resent the raid, which reminds one of Rob Roy and a Highlander's lifting expedition more than of sober warfare; until Xavier threatened him with the displeasure of the Portuguese Viceroy, who, he said, 'was ready to avenge the wrongs of the poor Christians, as if they were his own.'

Such a message implies the existence of the power to execute the threat. A man of policy and peace like Xavier would never have blustered and threatened a Hindu prince with punishment that he was powerless to inflict; and we gather from this that the power of the Portuguese in 1540 was able to make itself felt at least along the coast to a very considerable distance from their political capital, Goa.

But the Portuguese do not seem to have had the colonising faculty. The tree grew straight and tall, but its branches did not

spread, nor its roots scatter. Like the native tree of the Western coast, the Cocoa palm, the Portuguese power topped every neighbour, and towered over every rival potentate. But a growth so limited and a life so narrow were liable to one fatal stroke, and fell under one axe-blow. There were no separate centres of vitality at which to strike fresh root and to renew the struggle for political existence, and this inherent weakness was fatal to the most exuberant growth of local power.

The coast of Malabar felt the presence of the European master; and the threat of the Portuguese Viceroy's anger was a real dread as far south as Travancore. But on the Eastern coast of the peninsula there is no sign of the activity of the Portuguese power. Tuticorin was, as we have seen, practically independent, the subject of masters who issued no orders, the vassal of a suzerain who exacted no service.

Further up the coast a new power made itself felt; and no part of Xavier's record is more interesting than the allusions which inform us of the influence then exerted by the rulers of Ceylon upon the mainland. The political relations that have from time to time existed between Southern India and Ceylon are full of obscurity and uncertainty. Ever since Rávana fell beneath the avenging arm of Ráma, the god-hero, the connexion of continent and island must have been maintained. The bridge of Nala was broken; but the narrow and shallow sea tempted adventurers, who were sure of reward in changing the barren sands of Marava for the tropical paradise of Lanka.

History for the few centuries that its pages illustrate; tradition that precedes and only distorts history; and the myth or fable that makes its heroes into gods, and its men into monkeys, but records under a veil of the supernatural the actual and the real; all these unite to tell us that Southern India and Ceylon have had their Norman conquest, and their battle of Lincoln, their Calais and Agincourt; that the island has from time to time annexed large portions of the mainland; and again that the continent has hurled the invader into the sea, and confined him within his natural bounds. Each dynasty tells the story after its own fashion, and the balance of victory largely preponderates always on the side of the teller. The Pandyan kings are distinguished by titles won in victories over the kings of Kandy; the Marava rulers of Ramnad are related to have defeated this king of Kandy and that. But the fact is admitted on all hands that the power of Ceylon extended from time to time to the continent of India; for the oldest shrine in the holy places of Rameswaram is locally said to have been built by the king of Kandy during his occupation of the Marava country; and we find here in Xavier's record, that three centuries ago the Ceylon raj included wide possessions on the mainland.

Xavier expressly records that the king of Jafanapatam, the modern Jaffna, 'was master of the islands of Manar'; and this expression can scarcely be taken to mean anything but Rameswaram and the islands that line the coast from the Strait of Pamben to Tuticorin.

Further he notes that the 'Governor of the province of Negapatam, commonly known as the Mudaliar, is in high favour with the King of Jafanapatam'; and this can hardly mean a friendship founded on any basis but that of allegiance to an acknowledged sovereign. However that may be, the power of this Jaffna king is shown to have been very real; for we find further that the Portuguese were obliged to engage in serious warfare with him, to obtain satisfaction for a political injury. The story is thus told by Xavier, who was hoping to proceed to Ceylon in the spring of 1545, and to obtain redress for the converts that had already been won to Christianity by Jesuit teachers but who suffered from the persecution that the king of Jaffna directed against these renegades from the national faith.

Although this visit was rendered impossible by the outbreak of the hostilities referred to, the wonderful success of the early Christian missionaries is well illustrated by the incident.

In December 1544, Xavier writes that the king of Jaffna is barbarously illtreating the newly converted Christians; and again in February of the following year he speaks of him as "resolutely shutting the doors of his kingdom against the approach of Jesus Christ"; while, notwithstanding this opposition, the number of converts would have reached 100,000 before the end of that year.

Suddenly, however, the persecution ceased; and the doors of the kingdom were thrown open by the king, who in May 1545 had already promised himself to adopt the new creed. Now, as often before and often since, political strife crushed religious fervour. A quarrel with the Portuguese turned the tide strongly against the teachers of the new faith; and instead of going to claim their royal convert, the missionaries were afraid to set foot in the island; feeling that political rancour and religious hatred would unite all classes against them. And so:—*l'expedition de Jafanapatam vient d'aboutir à néant; et le roi, qui avait promis de se faire chretien, n'a point été rétabli das ses tatés . . . . . Un vaisseau du roi de Portugal revenant de Pegou fut abordé sur la côte de Jafanapatam, et le roi de ce pays s'étant emparé des marchandises, les Portugois ont cru devoir surseoir à la guerre pour la restitution de leur propriété.* Disappointed in Ceylon, Xavier left India for Singapore; and so his Indian mission ended. He left the country an earnest missionary, he returned a canonised saint. His embalmed body was borne from the Eastern seas to rest in its sepulchre at Goa; and at each halting place on its

way, the Jesuit converts vied with each other in the expression of their reverence, and the genuineness of their regrets. Miracle and marvel were soon busy with his name; and another generation learned how the sick were healed, the dead were raised, and the very sea forced to yield its pearls at the word of the great Guru. His own narrative knows nothing of these things. It is a plain story replete with the evidences of truth and simplicity. The ingenuity of later marvel-mongers, and the necessities of rival churches, gave rise, long centuries after, to the tissue of fable which has been woven round his life; and which has placed him on the same level with St. Francis of Assisi as a worker of wonders. Still on the coast of 'La Pécherie', as the Jesuits named the sandy tract from Cape Comorin to Rameswaram, the name of the great saint is a landmark in the past. The 'days of Xavier' are the point beyond which the memory of Christian man runneth not to the contrary. Well would it be for the progress of the faith he preached if, in reverence for his name, and imitation of his example, national rivalries and priestly jealousies could now be stilled The Church of Goa that guards his bones might well remember that he too was a Jesuit; and the Jesuits of to-day might well cherish the memories of the great Goa missionary, who knew nothing of the prejudice of race, and who hated nothing but heathendom; who, if he were at the head of the Church to-day, would suffer no divisions in the Church of Christ; knowing that as union is strength, no scandal can be so injurious as the sight of rival sectaries wrangling over the rags and tatters of ceremony.

Thus we have gathered from the pages of Xavier's record the gleams that flash upon the political landscape of three centuries ago. The social side of his story, the insight he gives us into the condition of the people and of the country, is not so full and complete as the corresponding portion in the stories of the missionaries that came after him.

Probably this is partly due to the fact that, as his journeys were almost wholly confined to the littoral districts, he travelled mostly by sea; and therefore gives us no descriptions of his road, nor of the perils of his way.

A few allusions, however, to social details are very interesting; as showing us in what the people of this coast have remained as they were, and in what they have changed for the better.

The converts to Christianity consisted chiefly of the fishing races of the coast, and thus belonged to two principal castes or tribes:— the Paravar, who have been already described; and the Kareiyar, a lower race of similar occupation. Karei means a bank or the coast, and Kareiyar means simply the coast-dwellers; and this caste, partly from the inferiority of social status, and partly from the superior wealth of the Paravar, were the

servant fishermen of that tribe. We read of two separate villages of Christian 'Carians'; and it is only natural that the subject race should have imitated the example of their masters and employers in adopting the new creed. The village organisation of the country was evidently then complete, and similar in form to the usual republic, under a paternal head, that prevailed throughout India. Xavier uses two distinct names for the village head-man. One is reduced in French to *patangat*, a sufficiently meaningless and uncouth word; but which only half-conceals the original Tamil *pattanu-karan* or townsman. The second is *Adigare*, a faithful transliteration of the vernacular *adikaran* or man in authority. If there was any difference between the two, it probably consisted in the popular appointment of the first, and in the official appointment of the second officer, who is also called a 'magistrate'. But perhaps the most striking and characteristic touch in the whole of Xavier's letters is that which indicates the habits and moral condition of the Paravar tribe in the clearest manner. From Manapadu, in March 1544, Xavier writes that he "has prescribed a fine of two Fanams (5 annas or 7½*d.*) to be inflicted "on every Paravan woman who gives way to her passion for that "liquor which induces delirium, and which is known as arack; "and three days, confinement for every woman who is convicted "of the vice of habitual drunkenness."

His priests were also directed to "proclaim in the same way to "the heads of villages, that if in future arack-drinking is allowed "at Punikayal, I will render them responsible for it, and punish "them very severely."

Violent remedies spring from and argue the existence of violent diseases; and if these severe measures of fine and imprisonment were then necessary to check the prevalent vice of drunkenness, the evil must have eaten deep into the habits of the people. Let it be acknowledged, then, that in this most important point the descendants of those drunken Paravas, men and women, have abandoned the error of those ways. A drunken Paravan woman in the streets of Tuticorin is at this day an impossible sight. And if a diver, after the hard toil for shells that lie five fathom deep, relieves his feelings with a draught of the evil 'liquor that causes delirium,' the excuse is sufficient, and the offence not frequent. Certainly they would not now-a-days get three days' imprisonment for such a breach of decorum. But if the evil has been stamped out in the women, and much abated in the men, no little share in the good work was doubtless effected by Xavier's salutary severity. Indeed, the mode of life of this worthy industrious race has been, we think, wholly changed by their contact with Christianity. We do not refer to the elevation of doctrinal belief, to the adoption of a purer creed, with higher objects of adoration, and

worthier aims both for this world and another. These are undeniable and undoubted. But we refer to that social growth, which enables man to rise higher above the lower world; to widen the gulph between him and the thoughtless brute; to find some worthier object than sensual passion, and some nobler aim than the morrow's meal. Picture that group which two strokes of Xavier's recording pen places before us, of the Paravan women of three centuries ago. Sodden with arrack, riotous as Mœnads, lost to their own shame, and their husbands' love, and their children's reverence. We revolt from the sight, not only as Christians but as men; and to remove such a blot is a service to humanity while it promotes religion. A stranger to India would be struck by the present fashion of the Paravan women; and those who after years of residence have learned how low women sometimes stand in the scale of humanity, cannot but rejoice to see the gravity and morality and self-respect that distinguish the public life and the private manners of the women of this race.

Nor can we doubt where to look for the secret of such a change. The idealisation of the softer virtues of humanity, in the adoration of the mother of God incarnate, turned the thoughts of these poor ignorant fishers into a new groove, and set before them an ideal of beauty and excellence that had never graced their sordid and almost savage life. Woman stood at the head, and no longer at the foot, of humanity. She was no longer the drudge of rude, rough men, but their companion and their friend; and instead of a slave on earth, man found in woman an angel of heaven.

The good seed that Xavier and his fellow workers sowed has thus borne fruit as valuable as, though perhaps different from, any that the labourers looked to gather. The Christians of Southern India will never, perhaps, obtain a strenuous robust persuasion of the essential dogmas of the faith of the West. But purity of life, and respect for woman, and industry and honesty and courage, are virtues that distinguish in no contemptible degree the fishermen of La Pécherie, and which may well be thought to countervail the skill of churchmen, and the accurate pronunciation of the Shibboleths of creeds.

J. H. BOYLE.

ART. IX.—GOVERNMENT LIFE ASSURANCE FOR NATIVES.

IT is hardly possible to exaggerate the importance to the native community of the proposal that has recently been made for the establishment of a system of Life Assurances for natives, conducted and guaranteed by the Government; or the extent to which such a measure, if adopted by Government; would be felt to be a boon by a very considerable section of the people. The following remarks are submitted to the readers of the *Calcutta Review*, in the belief that the experiences and opinions of a native, of the class most affected by the proposal, may be interesting to them.

About 1861, myself and some of my friends felt disposed to insure our lives; but on enquiry we found that no Company would take us in. Then in 1868, having learnt that the Albert had commenced to assure native lives, some four or five of us insured our lives there for sums varying from two-and-a-half to ten thousand rupees. Many others also were desirous to do the same; but being more prudent and hesitating, they took time to make up their minds, or wanted to see how our adventure turned out. But within a short time the Albert collapsed; and the consequence was that even those who had made up their minds to insure their lives, imbibed a strong prejudice against the whole affair; and there were not wanting, among our friends, many who taunted us for having entrusted our money to a foreign Company, of whose affairs we were entirely ignorant.

Some of us have again insured our lives at the office of a great English Assurance Company, mainly because that company was among the first to come forward to take in native lives. Of course we are not in a position to be able accurately to estimate the probable stability of any European company; and consequently we cannot feel any great confidence in the safety of our investments. Nevertheless, we insure, because we look more for our comfort while living, from a sense of having done something towards making a provision for our families, than for the certainty of our families getting, after our death, the money that we insured our lives for. Before the Albert had failed, we did not hesitate a moment to recommend our friends to insure their lives; but it is easy to understand with what doubts and reservations we now speak to persons who ask our advice if they should do so.

From these facts, it will be seen and inferred that a large number, among men of our class, strongly feel the necessity of insuring their lives; that those who now insure at the offices of

companies that take in native lives, do so almost with the expectation that the result will be the same as in the case of the Albert; and that others refrain from insuring their lives only because they can have no grounds for confidence in any Company.

Most men of our class, *i.e.*, descendants of high-caste and respectable families, but of reduced means, are so peculiarly circumstanced, that insuring their lives is a most urgent necessity with them. Our forefathers used to earn large incomes which they spent according to their ideas of utility; so that they have left us to inherit a social position of some consideration to keep up, but no adequate realised property from the proceeds of which to do so. As soon as we come of age, we find ourselves saddled with a large family of widowed female relations with their children, and sometimes even male relatives, who cannot now earn their livelihood on account of old age, or the altered circumstances of the country. We have more distant connections, whom, though we may not have actually to support, we are required to assist in their need. Besides, we have feasts, donations and ceremonies to keep up, if we desire to preserve anything of the respectability which our fathers and grandfathers enjoyed. This circumstance is the secret of the avidity with which men of our class seek the bread-earning education of the day—the eagerness with which they seek employment, and the entire absence of enterprise requiring time for the realisation of its benefits in them.

Having such large expenses to meet, from whatever income they may derive from service, the utmost they can do is to make the two ends meet. They find it impossible to save anything worth the name. Almost all high-caste people, *i.e.*, those belonging to Bráhman, Vaidya, and Kayastha families, with the exception only of the few who are big zemindars or rich capitalists, are under such straitened circumstances, whether they follow the professions of law, or medicine, or some Government or other employ, or follow mercantile and other pursuits. Their education and feeling of respectability make them extremely desirous of making some provision for their families, but they find their earnings quite insufficient to enable them to save anything to the extent they desire.

If under such circumstances, Government were to lend the security of its name to some system of life assurance, and a short time were to elapse to enable everybody to see into the matter, almost the whole of this class of men, constituting more than ninety per cent of those who receive an English or other kind of education, are sure to insure their lives, and consider the measure as a very great favour extended to them by Government.

Permit me to say a word here in extenuation of the great fault of spending beyond, or up to, one's income, with which many will

doubtless consider this class of men chargeable. The fact is they cannot help themselves. Being born Bengalis, they must, generally, conform to the usages of Bengali society, where a man's earnings are not his property, but that of his family ; and where, in matters of family concern, which, in the end resolve themselves simply to questions of expenditure, the desires of a mother, or other head of the family, have to be consulted in preference to those of the earner himself. The donations, feasts, ceremonies and *púját*, are not things absolutely wrong in themselves, against which a man's moral nature should recoil in disgust. The donations are always made to persons with whom there is some bond of relationship, and from whom such assistance is expected in return in time of need. They are a sort of insurance against evil times, though of a very imperfect character. Feasts and ceremonies are merely occasions of social gathering, which are necessary, to some extent at least, for the moral well-being of a man. The *púját*, are not the orgies that many Christian gentlemen imagine or describe them to be; along with much that is unmeaning and foolish, there is something in them which satisfies the spiritual cravings of men of a certain stage of development. But it is not my purpose here to support these occasions of unnecessary expenditure.

However innocent or useful they may be in themselves, they are wrong and hurtful, inasmuch as they entail so much unproductive expenditure, and encourage or compel living beyond one's income. But though their enormity may be patent to us, we can only reduce them *bye-and-bye*, along with a general diffusion of intelligent education. We cannot avoid them *altogether*, and *all at once*. There are but two alternatives which men of this class can adopt. They can either cut themselves off altogether from Hindu society, their families and relatives, and live after a fashion of their own : or they must live in the way they do. But every fair and thoughtful man will certainly excuse a Hindu, with the training he has received since childhood, and the inherited tendency of a thousand generations, for choosing the latter alternative and clinging to his kith and kin for better or worse. His mother or other close connection, who had seen better days, and had their early training at a time when the difficulties of to-day did not exist, he cannot bring his mind to leave to their fate ; or to treat them, after he has become the earning member of his family, otherwise than his father and grandfather have done. It is difficult for a foreigner to conceive the depth of self-degradation that a Hindu feels when he finds himself unable to maintain his family in as much ease and comfort as they have been accustomed to before his time.

Along with all the expenditure mentioned above, the class of men of whom I speak have now to meet those incidental to a

considerable change in their mode of life, tastes, and habits. Articles of food, clothing, furniture and so forth, have now to be of much greater value than what used to satisfy their ancestors. All this, coupled with the great rise in prices of late years, place men of this class in a condition of which the difficulties can scarcely be exaggerated. Is it strange, therefore, that they find it impossible to save anything from their scanty and limited incomes, are often compelled to borrow, and thus make themselves liable to reproach for extravagance?

Under the native *régime*, the ancestors of this class, who constituted the high-caste middle class, held situations of importance and high emoluments; and in professional, commercial, or other pursuits, had not to withstand the competition of a superior race of foreigners, such as their descendants have now to do. Under the circumstances of those times, they were able to maintain their superiority over the other sections of the community in almost every walk of life. Such among them as possess more than ordinary talents and strength of character, often raise themselves to great eminence. But their descendants now, having that respectable position to maintain, are very heavily weighted in the race of life, whether in State employ or other pursuits.

The great rise in prices and wages that has taken place, is the result of a foreign trade, the profits of which form no part of the capital of the country, and which has destroyed most of its important indigenous industries. So that not only has State service, available for this class of men, been limited to the lower and least-paid grades; but the field of private enterprise has also been extremely narrowed.

These circumstances are the natural results of the country's coming in contact with a stronger and more civilised race of men. A century or so hence, the country will doubtless arrive at a much higher stage of development, than if it had been left entirely to its indigenous efforts. But in the meantime the position of all classes, except only those who are very rich and who are directly engaged in cultivating the soil, is really deplorable. It is a serious question with the high-caste classes, whether they are not in the way of being exterminated from sheer inability to maintain their position or sink in the struggle for existence. That they already are is the firm conviction of many among us, based upon a comparison, in a large number of cases, of the number of male members now living in each family, with those that lived at one time, twenty-five or thirty years ago.

Men of this class naturally believe that the possession of the country by the British is the cause of all those changes which have placed them under such great disadvantages. It is nothing but fair that Government should do something—by accepting, for

instance, the proposal that has now been made—to compensate them, to some extent, for the loss of the position they held in society from time immemorial. They are at the worst a very improvident class of men ; and if the reformation of the criminal, and the education of the ignorant, classes be objects of solicitude to Government, surely the holding out to these men the prospect of having a competence for their families, and thus tempting them to save something from their incomes, or, in other words, teaching them to be less extravagant by guaranteeing to them the benefit which is to result from their economy, cannot be an object unworthy of the attention of a powerful and benevolent Government. By adopting the measure, Government will greatly help the accumulation of capital, by means of small savings, effected *under compulsion*, as it were, from incomes now almost entirely frittered away in unproductive expenditure. Even if there be a loss in this insurance business, it will only be paying the money raised in the country for the benefit of a large and important section of the community. But, instead of loss, there is almost the certainty of some profit being made.

If, under such circumstances, Government do not adopt the proposed measure, it can be, so far as we can understand, for no other reason but because they do not know or sympathise with the difficulties and disadvantages of the people.

But if adopted by Government, the measure will have much the same appearance as the provision which native gentlemen used to make for the families of their deceased servants. In India, it is understood to be the duty of an employer that he should make some provision for the families of his deceased servants. That the British Government does not do what native gentlemen used to do in that way, only detracts so much from its popularity, and is believed to arise from a want of sympathy with the people, by those who do not know that in England also Government does not generally make such provision. Since the death, lately, of Bábu Dina Bandhu Mitra, of the Post Office, all the native papers are asking Government to do something for his children, for whom he could make no provision while living. Such a proposal may appear unreasonable to a European ; but every native will feel it only quite natural that Government, whom the Bábu served faithfully while living, should, on his death, assume the responsibility of the position of *má-báp* to his helpless children.

Such being the state of native feeling on the subject, one can easily understand how greatly Government will increase its popularity, if payments (of assured sums) are seen to be made by it to the children of its deceased servants. It will not, indeed, be doing the same thing that Native Governments did ; but the payments of premiums, made by Government servants, in order

to secure the insured amounts, will be regarded by the generality of the people as so much less pay drawn by them.

Holders of Insurance Policies from Government, like the holders of Government Securities, will have one more reason (and that a very strong one, as touching them personally and pecuniarily) for being interested in its permanence and prosperity.

The class of men who are likely to flock in to hold such policies, I mean the educated middle class of the higher castes, are the most influential in the community. All the zemindars of the country (except only a few very rich among them, who may be said to form the higher class), belong to this section. The big zemindars, when they do not themselves belong to the educated class, are mostly guided by men of that class. Either directly as zemindars, or as advisers and servants of big zemindars, they wield an immense influence over the ryot class. Owing to their education, intelligence and position in society, they exercise great influence over the other men of their castes, and the vast majority of the people of other castes. Lastly, as authors, newspaper-writers, lecturers, and teachers, they have a great hand in moulding the aspirations aud feelings, the sympathies and antipathies of the rising generation. Surely it is worth the while of Government to make this class interested in its prosperity, by one more tie, if that can be so easily done, by undertaking a business which, in other countries, private companies carry on for profit.

With regard to the details of the measure I have not much to say. The greatest obstacle to a man insuring his life, is his want of confidence in the Assurers. But the security of Government is practically absolute, and it is understood to be such by the class of men who require to insure their lives most. There is the thought that if in future one is unable to continue his payments, all the money that he will have by that time paid, will go for nothing. But this fear will also be removed by the principle proposed, *viz.*, that a policy-holder failing to pay his premium regularly, is to be entitled in case of death, for his family to get a certain amount, calculated in consideration of the premiums that may have been paid by him, before getting into arrears. Those who once fall into arrear ought to be given the option to revive their policies, on the payment of a fine; which should be so fixed that paying it may not be an equal or a greater loss than the payment of the enhanced rate necessary on account of increased age, if a fresh insurance were to be made at the time.

I do not think it will be proper to allow the surrender of a policy. It will be offering a temptation to draw on the future, which so many of us are so apt to do. In order to meet the case of men who may get rich after insuring their lives, and wish to

be freed from the bother and anxiety of having punctual payments to make periodically, Government may undertake, on the assured handing over to it Government Securities of sufficient amount to cover from its proceeds the payments of premium, to return it together with the amount of insurance, on the death of the assured.

I do not know if there exists any collection of statistics that may justify Government in charging natives a higher rate of premium than Europeans pay in this country. If there is none, there is no necessity for charging a higher rate at the outset, or till the accumulation of facts should prove it to be necessary, There is no reason to fear, that in the case of natives, Government is likely to experience greater difficulties with respect to the proof of age, satisfactory references, medical examination, evidence of death, &c., than attend the case of Europeans insuring their lives at private offices in this country. I do not think such Europeans produce their birth-register certificates as evidence of their age ; and the possession of a registry of births is, I believe, the only important circumstance that makes a difference between a European and a native in this respect. It may be provided, that, in addition to such testimonies as to age, as a native may produce, he is to name two or three persons, residing at the sudder station of a district, in whom the Collector and Magistrate may be expected to have sufficient confidence, who are to communicate to him what they know of the age, habits, and general health of the proposer. These persons may be appointed by the assured as trustees to receive the moneys after furnishing satisfactory proof of his death ; and when any of these men die before the assured, the latter may name another to fill his place, with the approval of the Collector. In doubtful cases, the Magistrate may make inquiries, through the Subordinate Service in the villages where the insurer may have been born, or may have lived or died.

With regard to the regular payment of premiums, Government need be in no fear of any difficulty, for those who will insure their lives in this country will, like people in other countries, understand such a plain case of self-interest ; and not stand the chance, by their irregularity, of forfeiting the full benefit of their previous payments.

The minimum limit of Rs. 500 suggested in the questions circulated by Government seems to be rather high. Why not make it Rs. 250, to meet the case of those who most urgently require the provision of insurance ? The maximum may well be Rs. 30,000. If Government undertake the business, the more lives that insure the better ; then why exclude pleaders, mukhtiyárs, small zemindars, and merchants, who are exactly the same class of men as Government servants ?

Within the first five years after the adoption of such a measure by Government, I fully expect 100 persons to insure their lives in each district on the average. After deaths commence to take place, and people see that Government actually pays the sums assured, the number is sure to increase at a very rapid rate.

DINA NATH SEN.

ART. X.—FAMINES IN INDIA AND THE DUTY OF GOVERNMENT IN CONNECTION WITH THEM.

THE first duty of a Government in connection with famines is to do everything it reasonably can to prevent their occurrence; its second duty is to do all that can reasonably be done to mitigate their effects when they occur. An investigation of the causes and conditions of famines, therefore, naturally occupies the first place in any enquiry on the subject; and the questions with which such an investigation deals, will be partly of a physical and partly of an economical nature.

The liability of a country to famine does not depend on mere poverty of soil, or on any other constant causes limiting the amount of its food-supply; for all such constant causes at the same time limit its population. The deserts of Arabia are not more liable to famine than the fertile plains of India. Indeed, it is quite possible that great fertility of soil may aggravate the mischief of famine, when, owing to some of the other conditions on which production depends, failing, it occurs. It is not in a barren country with a small population, but in a highly fertile country with an abundant population, that a sudden failure of the harvest is liable to be attended by the most disastrous consequences. The relation between population and food-supply tends continually to an equilibrium; and the more constant the latter of these functions is, no matter what its actual amount may be, the more nearly this condition is attained. It is, in fact, to violent fluctuations in the ratio between food-supply and population, due to inconstancy in the causes on which the former depends, that the liability to famine is to be traced. It follows that it is not to any mere increase of fertility or of the average amount of the food-supply, but to the removal of these causes of inconstancy, that we must look for the means of preventing the liability to the horrors of famine.

Since the meteorological and other conditions on which fluctuations in the yield of the soil depend, vary for different tracts during the same period, an abnormally small production in one tract being counterbalanced by an abnormally large production in another, it is obvious that the greater the area from which a community draws its food-supply, the more nearly is constancy in the amount of that supply attainable, and the less liable is the community to be overtaken by famine.

There are, therefore, two altogether distinct modes of diminishing the liability of a community to such catastrophes, the one by

creasing the constancy of the physical conditions of its own roduction, the other by extending the area from which its od-supply is drawn.

In a country where the chief source of liability to failure of roduction is deficient rain-fall, the nearest approach to this cons-ancy is attainable by rendering production as far as possible ndependent of the need for rain, and the most effectual means f doing this which science has yet discovered, is irrigation.

Where, on the other hand, floods are the enemy most to be readed, the only available remedy is a system of embankments and rainage. In no case, however, is it possible, in the present condition f science, to attain to absolute constancy, or even to prevent all ability to such a degree of inconstancy as involves the risk of erious famine. Many of the physical causes upon which production epends, or by which it is liable to be unfavourably affected, are ntirely beyond human control. No human precaution, for in-tance, can guard against hail, or storms, or the ravages of locusts, r some forms of blight; and, in Ireland, we have lately had an stance of the almost total destruction of a crop on which the popu-ation depend for their subsistence, by a cause which is not only so ar unpreventible, but the very nature of which is a mystery.

No community, therefore, which draws its food-supply from a ery limited area, can be absolutely secure from the liability to amine; while one which draws its food from an extended area, hough it has adopted no precautions to guard against violent uctuations in the amount of its own production, may be com-aratively safe. Even in the latter case, however, the security s far from being perfect. There are records of the whole of Asia eing simultaneously affected by a destructive drought. Such a cala-nity, it may be said, does not happen once in five hundred years, nd is of a kind which it transcends the legitimate functions of uman prudence to guard against. There are, however, other ources of uncertainty of a much less rare and remote character. o matter how extensive may be the area from which a community raws its food-supply, it may be entirely cut off by causes beyond its wn control, from all possibility of communication with the rest of the orld, or its foreign communications may be so seriously interrupted, hat it cannot depend with any certainty on outside sources of sup-ly for its subsistence. It will suffice to mention a state of war as ne of the circumstances by which it may at any time be reduced o this condition.

The most perfect security against famine attainable is, of course, o be found in a combination of both the modes of precaution to hich we are referring. A community which has done all that ies in its power, to obviate inconstancy in the amount of its own roduction, on the one hand, and, on the other, to extend the area

from which it can draw its food-supply, is as well off as regards liability to this misfortune, as human effort can make it.

It is, however, by no means certain that under all circumstances a community is bound to do, or would be justified in doing, all it can, in either of these directions. Inconstancy in the physical conditions of production in some countries may involve so small, or so rare, a danger, and on the other hand the means of entirely obviating it may be so burdensome, that the remedy is worse than the disease. In a country where serious drought is known to occur only once in a long series of years, and where the water supply in other years is so abundant that irrigation is then absolutely useless, the burthen of constructing and maintaining the necessary works may be a matter of greater moment than the distress, or even the loss of life, liable to be caused at distant intervals by a famine. It is a moot question whether Bengal is not in such a position.

It is not always, however, the main body of the community themselves who are capable of rightly deciding a question of this kind. In many parts of the North Western Provinces, where irrigation would be in most seasons remunerative, and where the liability to drought is comparatively frequent, the people, if left to themselves, would, from sheer stupidity or recklessness, decide it wrongly; and there are reasons why the question should be a very difficult one for even the wisest foresight to decide. One of these is the fact that it is not a matter of mere figures. It involves the indeterminate problem of the comparative valueof human life and material wealth with all its incidents, a problem which—men will not be able to determine till the harmony between the feelings and the intellect is complete. We cannot determine generally how much pain is worse than death; and it is only beginning to dawn upon mankind that there can possibly be a question between the comparative duty of preserving weak lives at the cost of general deterioration of physique, and the attainment of general physical improvement by their sacrifice.

As regards the other mode of precaution, it must be remembered that, for importation to be an efficient means of preventing famine, it is indispensible that there should not prevail too wide a disparity between the prices of food at home and at the places from which it has to be imported. If this disparity approaches in magnitude the difference between normal and famine prices in the home market, it is obvious that the remedy is available only after much of the mischief of famine has ceased to be susceptible of remedy. It is generally only after a country has been brought by long continued trade into such a relation with its neighbours that the normal values of food on either side are already nearly approximated, that the possibility of preventing at least the earlier stages of famine by importation arises. Such a state of things cannot usually be

arrived at suddenly ; and, whenever it is arrived at so suddenly that the necessary processes of adaptation have not had time to take place, the inconvenience caused is comparable with that occasioned by famine itself.

So far we have been considering the causes of famine generally Let us now take the special case of India.

Almost every great famine in India—and when we speak of great famines, we mean famines at once intense and widespread,—has, there is good reason to believe, been the result of drought. Only one great Indian famine of which we have any record has been generally attributed to any other cause. This is the famine which occurred in the year 1345, during the reign of Muhammad Toghlak. Mr. Girdlestone, in his Report on the past Famines of the North Western Provinces says regarding this event : "The constant expeditions which this monarch undertook in order to put down rebellion in distant provinces, and the magnificent ideas which he conceived of conquering Khorasan, and even China, necessarily led to increased taxation throughout his dominions, and caused men to be pressed for the army who would otherwise have remained peaceful tillers of the soil. Not content, too, with this drain on the agricultural population, he on more than one occasion ordered out troops as though for a wild beast chase, but really with a view to kill unfortunate villagers, whose only fault was that they could not satisfy his arbitrary demands. Even now his name is better known for the massacre of unoffending men at Kanouj, than for those wonderful talents and accomplishments which were almost unique in the days when he lived.—A long series of oppressions ended, as it might be expected that they would end, in widespread distress. The peasants fled from their houses and resorted to the jungles in despair. Many adopted a career of plunder ; many more died through sheer starvation. To make matters worse, the calamity which man's violence had originated, *was enhanced by unfavourable seasons.* There were neither labourers nor cattle enough to ensure a sufficiency of food, *and the few crops that were sown failed for want of rain.*"

Even in this case, we thus see, it is admitted that want of rain had something to do with the famine ; and we suspect that, notwithstanding Toghlak's military expeditions and tyrannical acts, there would have been no really widespread mortality from want of food, but for this untoward meteorological condition. An army may leave famine in its march, but it must be an enormous army whose march is the cause of a famine extending "more or less over the whole of Hindustan," while, as to the impressment of men for an expedition to China having seriously affected the harvest over so great an area, it is altogether incredible. No doubt, the misgovernment and oppression that marked Toghlak's reign, were such as to

render the people wholly incapable of struggling against a scarcity of even moderate intensity. But, after all, the only year of his reign in which there is said to have been widespread famine, was 1345, while we are told that his expeditions and his tyrannies were "constant," and in this year 1345, it is admitted that there was a failure of the rain-fall. We are fairly justified, therefore, in concluding that even this famine was not an exception to the rule.

Colonel Baird Smith has, certainly, suggested that the great famine of 1769-70 was due to floods rather than to drought, but the evidence that this was not the case, and that the real cause was a failure of the rain-fall, very similar in its circumstances and incidence to that of 1873, is overwhelming. Indeed, it is we think, very doubtful whether the occurrence of a widespread famine from floods in India is physically possible, though extensive local failures of the crops from this cause are of not infrequent occurrence.

It may be accepted, then, as an established fact, that the only natural cause of deficient production which the people of this country have to fear, or, at all events, which it is worth their while to make special provision against, is drought. Irrigation works are consequently the only available means which they can usefully adopt of increasing the constancy of production. *

Leaving the mode of providing funds for, of constructing, and of regulating such works as matters of administrative detail which hardly fall within the scope of our subject, we proceed to consider the conditions under which it is economically desirable that such a means of reducing the liability to famine should, or should not, be adopted in any particular district. For this purpose it is necessary that we should set out with a clear understanding of what economy comprehends; whether we shall take the ordinary commercial sense of the word, in which it is a matter of mere quantitative calculation of the total outgoings and the total incomings; or whether we shall take that wider and higher sense, in which the question of intensity comes into play, as well as that of quantity. In the former sense, expenditure is economical when the total of the returns exceeds the total of the disbursements; and all that it would be necessary to consider would be whether, on an average of all varieties of season, the increase of production from the works contemplated would counterbalance the cost of maintaining them, and the interest on the capital expended in their construction. In the latter sense, expenditure

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* It is possible that a deeper system of cultivation might operate in the same direction. But for reasons into which we cannot now enter, we believe that, under existing circumstances, there are insurmountable obstacles to any great improvement in this respect.

may be economical, notwithstanding that the total of the disbursements exceeds the total of the returns. If such were not the case it would be wholly impossible to defend the principle of insurance, at least as at present practised, on grounds of economy; for the mere fact that it is to the advantage of the insurance offices to carry on their business, is a conclusive proof that the total of the payments made by the insurers exceeds that of the payments made to them. Yet as a matter of fact, there is no doubt that insurance at rates fairly remunerative to those who accept the risk, is true economy on the part of the insurers.

Let us examine for a moment the reason why this is so. The explanation is based on the fact that profits and losses are characterised by intensity as well as by quantity. On the one hand, it may be vastly more advantageous for a man to gain a hundred pounds in one year, even though he gain nothing in the next twenty-four years, than for him to gain five pounds a year for twenty-five successive years. On the other hand, it may be much less disastrous for a man to lose five pounds a year for twenty-five successive years, than for him to lose a hundred pounds in one year, even though he lose nothing in the next twenty-four years. The hundred pounds in the latter case may be the whole of his capital or stock-in-trade, and its loss may mean a life of poverty and pain, or even premature death; while the loss of a hundred and twenty-five pounds, in twenty five annual instalments of five pounds each, may not only involve no serious inconvenience to him, but may even be consistent with a gradual increase of his wealth.

This is not only the case with regard to the pecuniary outgoings and incomings of individuals; the principle is one which obtains throughout nature, and the importance of which increases in proportion as physiological considerations come into play. A certain amount of labour spread equally over seven days may be in a high degree healthful, while the same amount expended in a single day may be so injurious, that neither six days' rest, nor a lifelong rest, will repair the mischief; it may be absolutely destructive; or it may be impossible. A large amount of pain or privation may be endured during a long period in a diffiuse form, while a tithe of the amount inflicted in a shorter period would be intolerable.

Now, the problem of the economy of expenditure on canals as a means of escaping famine, is one in which a multitude of physiological considerations come into play, and it is pre-eminently necessary that it should be regarded intensively as well as quantitatively. To mention only one of these considerations, which includes most of the others, it is infinitely better that a man should be a little hungry, and *a fortiori* that he should suffer less

urgent privations, every day for a year, than that he should be absolutely without food even for a single week. Then there is an important class of considerations, not altogether of a physiological character, but. similar to those which render insurance against fire good economy, which make it advantageous for men to undergo a small annual sacrifice in order to escape a season of such severe need as a famine implies, even though the total of the annual sacrifices is greater, quantitatively considered, than the actual loss avoided, and though that loss would not be accompanied by sacrifice of life, or even severe physical suffering. For a large majority of those who have the means, or the credit, to tide over such a period in personal safety, come out of it with the savings of years utterly exhausted ; with their jewels, their household goods, their implements, and perhaps their very cattle and seed grain, sold or consumed, or, in addition to all this, oppressed with a load of debt from which they may never recover. The result is that, in the place of a few years of moderate self-denial, they have to endure a life-time of poverty and distress. From the position of men of substance, they have sunk into that of beggars ; from free men, they have been degraded into serfs. The effect of a season of famine on the country is thus not merely to entail on its population a certain amount of loss of life, or temporary suffering, but to thrust back its progress for an indefinite term of years ; so that a succession of such seasons, even though occurring at considerable intervals, may be absolutely inhibitive of all general progress whatever. Whenever the deficiency is so great that the high prices do not compensate producers, a transfer of wealth takes place from them to the money-lending class, and where this transfer is effected through an increase in the debts of the former, the ultimate loss to them is immensely greater than the amount of borrowed money actually expended by them during the famine. All this is, it may be said, so obvious as to amount to truism. Yet it is by no means certain that it is sufficiently considered by the generality of people in practice. While the quantitative elements of such a problem as that of irrigation are easily appreciated, much more recondite reasoning is required in order fully to appreciate its intensive elements ; and in this country it is evidently not to the mass of the people that its decision can be safely left.

As regards the need for irrigation, the lands which make up our Indian possessions may be broadly divided into three classes ;—the first consisting of tracts of country in which the rain-fall is normally insufficient for successful cultivation ; the second, of tracts in which the rainfall, though more frequently sufficient than not, is in a high degree precarious ; and the third, of tracts in which it is generally abundant, and drought an exceptional occurrence. Taking

the Bengal Presidency, a considerable portion of the Panjáb may be fairly ranked in the first class. A part of the Panjáb, the North-Western Provinces, and, in a lower degree, Behar, may perhaps be placed in the second category; while Lower Bengal belongs to the third.

In the first tract, where the yield is scanty or cultivation absent, the advantage of irrigation is obvious; for, where the soil is not absolutely incapable of yielding a crop, the production is immediately increased by it to an extent more than sufficient to repay the cost. It is not, however, as has been already pointed out, in tracts of this description that irrigation is most needed, if it indeed it is needed at all, as a precaution against famine on the spot. For the production, though insufficient in amount, is comparatively constant; and the population sparse in proportion. As a remuneratve undertaking and a means of increasing the wealth of the people, irrigation is, nevertheless, under such circumstances, highly desirable; and moreover, although not required to prevent famines on the spot, it may be very useful in helping to prevent, or mitigate famines elsewhere. For the increase in production, caused by it, at first far outstrips the growth of population, and leaves a surplus of grain for exportation.

In tracts of the second kind, irrigation may, or may not, be commercially economical, but is undoubtedly economical in the higher sense of the term we have described above. Whether the fact that it is so is apparent to the ordinary native mind, will depend upon whether the danger is sufficiently marked and frequent to impress a somewhat dull imagination, unaided by any great degree of foresight, or not.

In tracts of the third description, irrigation obviously cannot be economical in the commercial sense; and the question whether it is so in any sense will generally be open to very grave doubt. In the face of such doubt, and of the dissatisfaction which any attempt to force irrigation works on the people would inevitably cause, the Government will, we think, act wisely in turning its attention rather to other means of precaution; and, with so wide an area entirely under its control, if it does its duty fully in constructing irrigation works wherever, on a thorough and intelligent consideration of the case they appear beyond reasonable doubt to be economical, it may probably rely with perfect safety on the extension of trade between one part of its territories and another to prevent serious distress. We have very little hesitation in saying that, if an effective system of irrigation works existed throughout Upper India and Behar, wherever irrigation is even commercially economical, and if at the same time the means of communication were made thoroughly efficient, there need be no fear of famine resulting from any probable failure of the harvest in Bengal.

As regards the importation of grain from beyond the seas, the trade relations of India with other countries are such that this source of supply is not available till famine prices have already been reached. Importation from abroad cannot, therefore, under present conditions, unless through the intervention of Government and at enormous expense, be depended on to prevent distress, or to check merely high prices, but only to mitigate the extreme effects of famine. It is not part of our purpose here to discuss in detail the conditions through which India would have to pass before she could look to importations from other countries as the first resource for supplementing a deficiency in her own harvest. Attendant on these conditions, however, would be a gradual rise of prices through a series of years. She may be approaching such a time; but it is not so near that she can, in the meanwhile, afford to neglect other precautions, more within her control. Nor, as we have already remarked, is it a time which admits of being precipitated, for a very rapid fall in the purchasing power of money is as certainly attended with widespread distress and social disorganisation when brought about in the course of trade, as when caused by a temporary deficiency of production. Even the sudden opening up of an isolated country, when it leads to a large influx of the precious metals, may prove a source of great distress to a large class of the population. However this may be, the broad fact remains that, in the present state of things, India cannot look without for the means of preventing famine.

The present pressure has led to the revival of the antiquated proposition for establishing great public granaries as a precaution against famine. Believing, as we do, that the best granary India could have, would be a complete system of irrigation, even if confined to tracts in which it was plainly remunerative, we should dismiss the proposition as superfluous, if there were any prospect of such a system being soon in operation. Since, however, it will probably be long before this can be the case, it may be worth while to consider whether, in the meantime, the establishment of such granaries would be an advisable measure. To establish them for the purpose of selling the food to the general population in times of scarcity, would be open to all the objections we urge elsewhere against interference with prices. As, however, the Government has a perfect right to pay its own labourers in food, it might seem at first that these objections did not apply to granaries maintained solely for the purpose of such payments. Nor would they, if it were possible for Government to maintain large granaries without seriously interfering with trade. But this would not be possible, if for no other reason, because food grains cannot be stored for a series of years, and, in order to avoid the destruction of their contents, the Government would be compelled to

empty them periodically, and substitute new grain for old, an operation which could not, in any way that we see, be managed without perpetual interference with trade. Such constantly recurring interference would be even more mischievous than the comparatively rare interference which would result from Government coming into the market as a seller in a time of famine, regarding the effect of which we shall have more to say presently.

As regards the prevention of famine, then, we believe the true, and only safe, policy for the Government to pursue, lies in the construction of irrigation works, wherever the rain-fall is either normally deficient, or notably precarious; in the facilitation, to the utmost of its power, of internal communications; and in the promotion of trade, both internal and foreign, and the removal of all obstacles to its development in the shape of octroi duties, transit duties, export duties, and the like.

The second part of our subject concerns the means which Government should adopt to mitigate the effects of famine, when, unfortunately, it occurs.

Foremost among the measures liable to be pressed upon its attention for this purpose, is that of coercing the grain-merchant to dispose of his stocks at moderate prices, that is, at prices which would enable every one to keep up his ordinary consumption as long as possible during a period of deficient food-supply. The advocates of such interference misunderstand both the true significance of high prices and the position which the grain-merchant really occupies in the scheme of society.

The grain-merchant discharges, in effect, the function of a banker of food to the community at large. He takes over from the producers, directly or indirectly, the surplus of food beyond their immediate necessities, and he distributes that food to consumers as required. The terms, however, on which he does this, are not banker's terms. He is not paid by a fixed commission; but his remuneration consists in the difference between the rate at which he receives the food and that at which he dispenses it, the former being the lowest rate at which he can induce the producers to part with it; the latter the highest rate at which he can induce the consumers to take it. The rate at which he receives the food, is determined by the ratio which the probable quantity to be thus stored is estimated to bear to the probable total drawings of the community; the rate at which he dispenses it, by the ratio which the quantity actually stored is estimated, between the parties, to bear to these probable total drawings. So far as the grain-merchant is enabled to obtain a higher rate of remuneration than the mere interest on his capital and value of his labour, the advantage depends on the differing conditions under which these ratios are calculated on either occasion. If it were

equally within the power of all the parties, on both occasions, to calculate them exactly, no such additional remuneration would, at least in a state of free trade, be possible. It is this excess of profit which is said by the economists to be the merchant's compensation for the risks of the market.

Along with this function of food-banker, the grain-merchant discharges another important function, *viz.*, that of an agent for the interchange of commodities between different sections of the community. In both these capacities he is a valuable servant of the public, and the sole reason of his being regarded in a less favourable light, lies in the uncertainty of the scale on which he is remunerated, an uncertainty which places buyer and seller in every transaction in the position of mutual antagonists, the one striving to get as much, and the other to give as little, as possible. Though the excess of profit which we have described as being the merchant's compensation for the risks of the market, is at one time a greater, and at another time a less quantity ; the average about which it oscillates, is an approximation to the true value of the risk due to really unavoidable uncertainty, and, so far as it exceeds that value, is due solely to the superior knowledge of future probabilities which the merchant possesses over those with whom he deals. The real uncertainty, however, and, consequently, the true value of the risk represented by it, itself varies according to the conditions under which trade is carried on at a given place and time, being greater in proportion as the machinery for ascertaining and making known the amount of production and of stocks, and the state of the markets, actual and prospective, is imperfect, and less in proportion as that machinery is perfect. Any real improvement in the machinery in question is, therefore, in effect, tantamount to a proportionate cheapening of commodities; and to facilitate such an improvement, by every legitimate means in its power, is consequently one of the most important functions of Government.

The light in which the grain-merchant is regarded by the people, varies very much as the prices of his goods vary. When they are not sensibly above the average, he is looked upon as at all events a harmless individual. When they are so high as to produce more than ordinary inconvenience, he is regarded with suspicion ; while, should they unfortunately reach famine height, instead of being blessed as a friend, he is execrated as an enemy of mankind.

It is commonly supposed that the higher prices, the greater the merchant's profits; and, in a season of scarcity or famine, the cry goes abroad, not merely that his profits are enormous, but that his cupidity is the principal cause of the surrounding distress. It is, however, by no means necessarily true that a season of famine is a season of unusually large profits to the

grain-merchant. Extraordinary losses and extraordinary gains depend alike upon *extraordinary uncertainty* in the course of prices. If, at the time when the grain-merchant contracts for, or lays in, his stocks, the means of accurately forecasting the range of prices exists, and is equally available to both merchant and producer, the extraordinary profit, so far as such profit may be possible, will accrue chiefly to the producer, rather than to the merchant; and, if, owing to the absence of such means, it is shared in, or monopolised by, the latter, it is at the expense of the producer rather than of the consumer. In practice, no doubt, the grain-merchant does generally make a greater profit in a season of dearth, than in a season of plenty, because, when the deficiency in the supply reaches a certain point, prices rise in a ratio so much higher as to outstrip all previous calculation; and of so much of the rise as has not been previously calculated, he gets the whole profit. In this country, no doubt, the relations between producer and merchant are complicated by the fact that the former is generally to a certain extent in the power of the latter, and that his needs and obligations prevent the possibility of his taking full advantage of any knowledge he may possess of the prospects of the season. But it is the proportion in which the profit is shared between the merchant and the producer, not the price to the consumer, that is affected by the circumstance.

Another ground of the ill-feeling towards the grain-merchant that is engendered in a time of scarcity, is the belief that he raises prices, and thus aggravates the prevailing distress, by holding over longer than he otherwise would hold over. As regards the raising of prices, this belief is, no doubt, a just one; but, as regards the aggravation of the distress occasioned thereby, it is, in ninety-nine cases out of a hundred, untrue. If the merchant does not hold over to a greater extent than is necessary to equalise the consumption, and thus eke out the food-supply, through the period of scarcity, it is evident that he does not aggravate the distress, but the contrary. For, though he is the cause of the effects of the scarcity being sooner felt, he guards the community against the fatal results of a total failure of the food-supply at a later period. If, on the other hand, he holds over to a greater extent than that indicated, he does so at the ultimate sacrifice of his own interests; for the result in that case must be, sooner or later, a revulsion of prices, and he finds that he would have made more by selling, than he has done by holding over. That he should occasionally err in this way, is inevitable; but, when he does so, it is a mere accidental result of a policy which, on the whole, operates to the advantage of the public. It might, moreover, be urged, that, even if the merchant does realise a higher rate of profit in a season of scarcity, and

that, too, at the expense of the consumer, this is no more than he is fairly entitled to on the principle that, the greater the magnitude of the service performed, the greater is its money value.

The primary cause of the irritation which, owing to a fallacious process of reasoning, comes to be vented in ill-feeling, and not unfrequently in overt violence, against the grain-merchant, is, of course, the pressure of high prices, untempered as it is by an intelligent appreciation of their real significance and effect.

We lack the special experience which would enable us to say whether or not the crew or passengers of a ship at sea, when prudently put upon half rations, entertain any feeling of irritation against the captain from whom the order emanates; but we suspect, from what we know of human use in general, that the usual tendency on such occasions is to feel that at least the captain is acting prematurely; and the inevitable consequence of such a feeling would be dissatisfaction, varying in intensity with the extent of the privation and the amount of the inconvenience suffered. We have no doubt, however, arguing on the same premises, that, in the absence of a controlling authority of some kind, the majority of the crew or passengers in nine cases out of ten, would not adopt a similar precautionary measure of their own accord until it was too late; if, indeed, they would not, with a full consciousness of the danger they were incurring, prefer to accept the risk of exhausting their stock before the end of the voyage, rather than endure for any length of time the pangs of present hunger.

Now, the position of a country that cannot import food, is, during a season of famine, very much like that of a ship at sea which has run short of provisions, and high prices do in the one case what the authority of the captain does in the other, *i.e.*, they equalise the consumption of the food-supply, and prevent its complete exhaustion, during the continuance of the necessity. And they do this, as no other means could do it.

There are two reasons why it is futile to expect that people will, of their own accord, and without the pressure of immediate necessity, contract their consumption of food so as to produce the same economising effect. The first of these reasons is their want of the requisite knowledge, or, if they possess the knowledge in a dim sort of way, the want of such a definite and forcible belief as shall work their imaginations up to the requisite pitch of apprehension. One of the chief indications of a scarcity is, indeed, for the mass of the people, these very high prices themselves. Even during their prevalence, there is, as we have already shown, a strong and general tendency to discredit their necessity;—to believe that things are not so bad as they are made out to be, or as to justify exceptional dearness. It is in the highest degree improbable,

then, that, without this indication, people would realise the magnitude of the impending calamity with such force as to inflict on themselves the very inconvenience which they regard as a serious grievance when caused by high prices.

The other reason is the enormous difficulty, with most people, of subordinating present desires to future necessities. This difficulty is far from being a merely factitious, or a captious one. To inhibit a present desire from developing itself into volition, involves an expenditure of nerve force of a most exhaustive kind, and the maintenance of an emotional conflict which is in itself most really painful, altogether apart from the pain of the mere privation undergone. It requires long discipline and great fortitude to exert such a controlling power over even ordinary desires,—over those in which the object is to procure pleasure, rather than to escape actual pain. But the desire to satisfy the cravings of hunger is no ordinary desire. It is a desire to escape actual pain of a most distressing character; and it may well be doubted whether more than a very small majority of mankind, with food at their command, would be capable of restraining the impulse to gratify it, for any length of time, for the sake of a remote contingency.

However this may be, it is certain that, in practice, the degree of apprehension created by a knowledge of a failure of the harvest is not sufficient to induce hungry people to refuse cheap food.

There is no power in the country, like that of a captain in a ship, to take the distribution of the food-supply under its own charge. The Government, if it had the power, possesses neither the knowledge, nor the machinery, necessary for such a purpose. High prices alone—the natural out-come of free trade—are capable of exerting the requisite control over consumption.

It follows that any attempt on the part of the Government to interfere with the natural course of prices must be mischievous, and, in proportion as it is successful, is liable to be disastrous in its effects; and this is true not only of direct interference, by fixing prices, but, in all but exceptional cases, of indirect interference, by entering into competition with private traders in the importation and sale of grain. It may, perhaps, be urged that, if the Government acts on the ordinary principles of private trade, nothing but good can result from its interference, since prices are, in that case, lowered only through the effect of a real increase in the food-supply. If the effect of the Government engaging in trade were the same as that of an extension of the machinery of private commerce, this would, no doubt, be true. But, in practice, the spectacle of Government thus occupying itself creates an impression out of all proportion to the magni-

tude, not only of its actual, but of its possible operations. The moment that Government begins placing grain in the market for sale, or importing it with the object, real or apparent, of so placing it, private traders, no matter how insignificant may be the actual extent of its interference, are immediately led to contract or suspend their operations, under the apprehension of a degree of competition wholly beyond their power to contend against. The Government is, in fact, at once credited with the intention of doing all that the merchants believe it to be capable of doing; and as they form an extravagant notion of the extent of its capability in the matter, they conclude that they must be inevitably crushed by so formidable a competitor, and retire from the field to avoid absolute ruin, or serious loss. As what the Government can really accomplish, is, however, at the best, utterly insignificant compared with the total of what the grain-merchants could have accomplished, the country thus driven to lean entirely upon it, will find that it is leaning on a straw. This argument against interference depends, of course, for its validity on the assumption that the distressed district is accessible to the operations of the private trader, and that no peculiar circumstances are at work to keep him out of the market.

The *Indian Economist*, whose opinions on matters of this kind, though not invariably sound, are entitled to consideration, has, indeed, attempted to show that high prices in the earlier period of a famine are especially mischievous, and, in somewhat vague language, urges the importance of endeavouring to keep them down. The *Englishman* not only contests the accuracy of this view of the case, the grounds of which are not distinctly stated by the *Economist*, but maintains broadly that, since the more completely prices are equalised throughout the season, the less disastrous the result is likely to be, the sooner they rise the better. In reply to the latter view, and in defence of that of the *Economist*, the *Indian Statesman* contends that high prices at the commencement of the scarcity are inoperative as a means of reducing consumption, while, on the other hand, they lead to the early exhaustion of the pecuniary means of consumers. His argument is, that, so long as people have money, they, not being philosophers, will buy as much food as they can with it, up to their usual quantity, no matter how high the prices are. This is, no doubt, perfectly true; indeed, it is the very argument we ourselves have just been using to prove the necessity of high prices; but the conclusion derived from it by the *Statesman* is erroneous.

The population of the country may be divided roughly into three classes; a small class who are wealthy enough to waste food in ordinary times; a considerable class who could, in ordinary times, buy more food than they do, but yet live economically, and a

very large majority who live literally from hand to mouth, and who, even in ordinary seasons, spend upon food all the money they have available for the purpose. The effect of high prices on the first of these classes is probably to diminish waste, which to all intents and purposes is consumption ; and if, by and by, it causes them to increase their expenditure, there is but little fear of their means being exhausted. The second class, no doubt, adopt the course described by the *Statesman*, that is, they increase their expenditure, and incur the risk of exhausting their means, rather than reduce their consumption ; but the third, and, so far as the point at issue is concerned, much the most important class, do not adopt this course, simply because they cannot. Their means of purchasing food are not so elastic as the *Statesman* assumes. They have no store of money laid by, out of which they can provide for an extraordinary expenditure on food, and their daily or monthly earnings furnish little or no margin for the purpose. They *must* meet the high prices by reducing their consumption, because they have not the money to purchase the same quantity of food as before. Their means, moreover, are not exhausted, for the simple reason that they have no accumulated means to exhaust.

At the same time it must be admitted that one of the results of high prices is to cut off the means of a large number of this class by diminishing the labour fund from which their wages come. The second class referred to, by whom they are chiefly employed, being compelled to expend more on their own food, have less left to disburse in the payment of wages to others, and the consequence is that the demand for labour falls off at the very time when, in order that the increased cost of the necessaries of life may be met, it should rise.

This brings us to a most important point in the matter under discussion. Though high prices are the means by which, operating through the selfish instincts of those who perform the function of food-bankers for the community, a scarcity of food compels that subordination of present desires to future exigences which alone can prevent its being needlessly destructive, they produce this effect in a very unequal manner. The reduction of consumption which they cause instead of taking place all round, falls entirely on the poorer classes. The sacrifice by which the food-supply of the country is economised, is exacted wholly from those who are least able to bear it ; least able both because their consumption is always at a minimum, and because they are the class who, being compelled to labour, are least capable of moderating the physical need for food. Here it is that, after prices have reached a certain height, it becomes the duty of Government to step in. The ground of this duty, however, is not any obligation to secure an equal distribution of the food-supply ; for the

principle of such equal distribution, pursued to its legitimate conclusions, would lead to communism in its most unqualified form. The ground of the duty, is the obligation Government lies under, to save its subjects from avoidable death or disease, and the extent of its interference should be limited strictly by this consideration. Even so limited, the duty is one which, in a time of severe famine, is liable to prove most onerous.

It is satisfactory to observe that the action of the Government on the present occasion, as it was on that of the last great famine in the North-Western Provinces, has been strictly in accordance with the principles we are here insisting upon. In spite of a great deal of very ignorant clamour, it has resolutely abstained from all interference with the prices of food, either directly, by authoritatively fixing them, or indirectly, by entering into competition with the grain-merchant. Still less has it shown any disposition to act on the communistic principle of equal distribution, to do which it would be necessary for it to take possession of all the grain in the country, and ration the population. Cautious as its policy has been, however, it has not altogether escaped accidentally impeding the operations of the private trader; for its importation of grain into certain districts, though merely for the purpose of paying the wages of its own labourers, is reported to have had for a time a discouraging effect on the importations of the merchants. Th ecircumstance was as unavoidable as it is unfortunate; and it fully confirms all we have said about the danger of a greater degree of interference.

The nature of the duty which the Government has to perform, being thus plainly indicated, the next question that arises is, how it can perform this duty with the maximum of economy, as regards the ultimate financial result to itself, and the minimum of strain on the food-supply of the country.

There is an unfortunate tendency in some quarters to ignore the former consideration, and to argue as though it were a matter of little or no importance that the expenditure of Government on relief operations should be reproductive, provided only the immediate object of saving life be attained. Those who adopt this view, seem to forget two facts, the one, that, whatever the net cost of relief operations may be, though it may come in the first instance from the Government treasury, it must ultimately fall as a tax on the people; the other, that, to feed people without utilising the store of force so converted into physical energy, is as plainly waste as to consume so much coal in the furnace of a boiler without utilising the energy of the steam generated by the process. It is the loss, once and for ever, as far human uses are concerned, of all but a small residuum of the force represented by the food consumed; a wilful and absolute

annihilation of so much wealth. Indeed, it is open to doubt whether the saving of life and health thus effected would not be but rather apparent than real; whether the loss of wealth involved would not mean ultimately an equivalent loss of life or health, which, though, owing to its being spread over a longer period, it would be less obvious and, it may be, less intensely mischievous, would be equally real with the immediate loss of life and health prevented.

The duty of Government to guard against its relief-expenditure being non-productive is thus as obvious as its duty to save life; and the realisation of this condition is to a certain extent facilitated by the mode in which the distress caused by a scarcity comes about. The people most liable to be thrown on its hands consist in the main of the labouring class, with a sprinkling, on the one hand, of the improvident members of classes higher in the social scale, and, on the other, of the old and infirm poor. The only relief which will meet the case of the last of these classes is charitable relief. In ordinary times they are a burthen which humanity requires the community to bear, but nevertheless, economically considered, a burthen pure and simple. Famine, or no famine, no production of any importance can be got out of them. As regards them, the one object of Government interference is to save life and prevent pain; and all it has to consider, is how this can be most completely effected.

As regards the most numerous of the classes named, it is otherwise. The cause of their being thrown upon the hands of the Government is two-fold. On the one hand the rate of wages is no longer sufficient to furnish them with the necessaries of life; on the other hand the demand for labour is seriously diminished. Inability to labour is not part of the cause. The obvious course for the Government to pursue is, therefore, to supply this class with labour, and it follows from what we have just said that it lies under the severest obligation to see that, as far as possible, this labour shall be of a reproductive character; while the more immediately reproductive it is, the more appropriate it is likely to be to the occasion. Labour imposed for labour's sake is but little, if at all, preferable to idleness. Indeed, in one respect it is worse, since labour increases the quantity of food a man requires. Labour expended on works which are unlikely to be continued to completion, after the famine has passed away, and which must therefore prove abortive, comes under the same category. Labour spent on works calculated to be only remotely useful, does not fully meet the necessities of the case.

It is open, we think, to serious doubt whether a considerable proportion of the works which are undertaken by the Govern-

ment on occasions like the present, do not fall within the last two descriptions. The scale of expenditure appropriate to a season of famine cannot be kept up in succeeding years; and, unless the works commenced have been very carefully considered, the chances are that many of them have subsequently, on financial grounds, to be abandoned in an unfinished state, and either remain mere curious monuments of a great famine, or, if at any subsequent period they are resumed, are found to have become so far impaired, as to need re-construction. Other works, again, are of doubtful or remote utility; and the expense incurred in them afterwards prevents the execution of works which, being more immediately needed, should have been preferred.

Moreover, while these works are being executed, there remains, unperformed, or inefficiently performed, throughout the famine districts, a labour which is of more urgent importance than perhaps any great public work that could be devised. The very circumstances which cast upon Government the burthen of finding employment for starving multitudes, are leading at the same time to a partial suspension of that agricultural labour on which the ensuing harvest depends. The labourers who flock to the relief works are, at least during a considerable portion of the famine period, set free from agricultural labour only by the inability of the ryots to expend the same sum as usual in paying them, and the inevitable result is that the work of cultivation is neglected, or inefficiently performed. Now, it seems very questionable whether the money which the Government proposes to spend in relief works of a special character, would not be better spent in preventing this diversion of labour from its ordinary occupations, than in encouraging it;—whether, in fact, there is not a great deal to be done in the fields themselves, which should take precedence of non-agricultural and remote works, and the suspension of which Government might interfere to obviate with a maximum of advantage to the country, and a minimum of distress to the people employed.

The cost of such labour, which would be eminently and immediately reproductive, would be recoverable in the ensuing year from the ryots at whose disposal it might have been placed. The difficulties which the organisation of such a scheme would present, do not appear to be very formidable. Two modes of operation occur to us. The scheme might be carried out through a system of advances to the ryots: but there would be serious risk of these advances being misapplied; and the system would be open to other formidable abuses. The other plan would be to tell off to the ryots, through trustworthy agents appointed for the purpose, such number of labourers as each decided that he could advantageously employ in his fields, the daily payments being made by the agents

in question and debited to the ryots. Supervision of the actual work would be unnecessary, as the ryots, knowing that they had to pay for the labour, would themselves be efficient supervisors.

All work of this kind having been provided for, any surplus of labour that remained, might be employed upon works of a more special character. But, even as regards such works, it strikes us that the village should be preferred to distant localities; agricultural to non-agricultural, and immediately reproductive to remotely reproductive undertakings.

All risk of the distress of one season prejudicially affecting the prospects of the next, would thus be avoided; while such a system would possess the additional advantage of bringing relief home to every one; of spreading it over the greatest possible area; of obviating the necessity for long journeys, which themselves represent either physical distress, or extra food expenditure; of involving the least possible risk of waste, and of creating a minimum of disturbance and excitement.

We come next to the question of the mode of payment of the labourers employed by Government.

It is self-evident that no mere expenditure of money by the Government in a famine-stricken district can either add one iota to its food-supply, or increase the number of mouths that supply is capable of feeding. Scarcely less obvious is it that any addition to the purchasing power of the people of such a district, if unaccompanied by an equivalent addition to its food-supply, must tend to raise prices. When, therefore, the Government distributes money in such a district, either in the shape of alms to the indigent, whose first need is food, or in the shape of wages to the unemployed, who are in a similar condition, though it thereby benefits the immediate recipients, it does so only so far as it injures the remainder of the population. It is true that in this there is no injustice, but the contrary, for its effect is to compel a more equal division of the existing food-supply; and, if the food-supply could not by any possibility be increased, it might be clearly better for the Government to adopt such a course, than to fold its hands while a portion of the population perished of hunger. This would be the case provided the food-supply were sufficient to keep all alive; but it is quite possible to conceive the supply so far deficient, that an equal division would mean the death of all, instead of only a few.

It is evident, however, that such a mode of relief does not, in any case, go to the root of the evil, which is the deficiency in the food-supply itself; and, what is not, perhaps, so obvious, it tends constantly to increase the need for relief, and consequently to add to the magnitude of the burthen on the shoulders of the Government. The original cause of the failure of the demand for labour being the strain exerted by high prices on the resources of private

employers, every further rise of prices tends to a still further falling off in that demand, and a consequent fresh accession to the ranks of the unemployed. Every rupee, in short, that the Government spends in the cash payment of wages, adds in a certain degree to the amount it will ultimately have to so spend during the crisis. Humanity and economy, therefore, alike require that for every rupee the Government thus spends it should, if possible, add an equivalent quantity to the food-supply of the district in which the money is spent. Since, as we have already shown, the importation of food by the Government for the purpose of sale is productive of far more mischief than benefit, it follows that the only way in which it can unobjectionably fulfil this condition is by feeding its labourers, either directly or indirectly, with the food it imports. We believe that it should do this from the very first, unless trade is so active as to furnish an assurance that every rise in price will produce an immediate increase of private importations; for the very fact of relief operations being necessary, is a conclusive proof that the food-supply is actually deficient.

The rate at which the Government should pay its labourers is a more difficult question. Where serious distress has commenced in a district, it is probable that the rate of wages there will be abnormally depressed; and the question will arise whether the labourers employed on relief works should be paid at the prevailing depressed rates, or at the normal rates of the district. Humanity will naturally be inclined to see in the high prices of food a strong reason for liberality. On the other hand, if the rates paid on relief works are much more favourable than those obtainable from private employers, the result will be the still further diversion of labour from its ordinary occupations. Then, again, should prices continue to rise, a time will by and bye come, when the prevailing rate of wages will not suffice to furnish the labourer with the minimum quantity of the necessaries of life required to sustain him in health, and the Government will find itself equally bound in the interests of humanity and economy to see that its labourers are not underfed. The consequence will be that, as the distress increases, the effect of the relief works must tend to bring about the abandonment of all other unskilled labour; and this fact furnishes another potent reason in favour of the scheme of relief operations we have advocated above,—in favour, that is, of such a scheme as shall, as far as possible, operate to retain the labour of the country in its usual channels.

It may, perhaps, be objected to a scheme of this nature, that the difficulty of paying the labourers in kind would be greatly enhanced under it, as it is a much easier task for the Government to transport grain to a few central depôts than to distribute it village

by village. But we believe that the transport of grain from the central depôts to the villages would be found, in practice, to be a matter of altog ether minor difficulty, since each village would readily furnish its own means of carriage.

We have adverted to the obligation of Government to provide for the aged and infirm poor, from whom no return in the shape of labour can be expected. The same reason holds good in favour of supplying them with food, rather than with money, as applies in the case of the labourers employed on relief-works. For the money expended affects prices equally, whether it is given away in charity, or paid in wages. Any attempt to relieve this class must, to be effective, be made near their homes ; and the mortality which has taken place on former occasions in consequence of neglect of this principle, we believe to be enormous. To succour this class effectually, the Government should, in fact, have a supply of food available in every village in which private charity cannot be depended on to perform the work.

We have pointed out in the first part of our article, the objections that exist to the maintenance of great public granaries as a means of preventing famine. The same objections do not, however, apply to the maintenance in each village of a store of grain sufficient for the purpose of charitable distributions in seasons of extreme scarcity, for the simple reason that charity cannot, in any case, be a function of commerce. On the contrary, there are strong reasons in favour of the adoption of such a plan. In the first place, it is a matter of importance that every thing should be done, that legitimately can be done, to mitigate the pressure that must inevitably be put upon external sources of food-supply, and upon the means of utilising them promptly, in the event of a sudden scarcity ; and it would be a sensible alleviation of this pressure, if the Government were relieved from the necessity of importing the food required for charitable distribution, by its existence beforehand on the spot. Then, again, it is plainly the duty of each village to provide for its own infirm. But even if it discharges this duty in ordinary seasons, it will almost certainly fail in it at a season when each one has enough to do to provide for himself, unless it maintains a permanent fund for the purpose. The alternative, in fact, lies between its leaving the burthen to be borne by the community at large during an emergency, and its making provision for bearing it beforehand. Such provision must be made either in money or in kind, and the same arguments tell in favour of its being made in kind, rather than in money, as tell in favour of the payments of wages on relief-woks being so made. Economy also points in the same direction ; for a maund of grain is a maund of grain at all times, while the price of a maund of grain in a season of

plenty may not suffice to purchase half that quantity in one of dearth.

Moreover, it is in strict accordance with the custom at every threshing floor in many parts of the country to set apart for charitable uses a certain small proportion of the grain threshed, the only difference between the plan actually pursued and that we here recommend, being that this grain is at present squandered in superstitious charity, instead of being collected and stored for a really beneficent purpose; for it goes to feed the idleness of the Brahman or the professional beggar, instead of the really infirm or honest poor. There would be no great hardship in imposing an additional tax of a few extra handfuls upon each ryot at harvest time, to be added to a reserve for the use of the infirm of the village on occasions when ordinary charity might be unequal to the demand on its resources. The non-existence of any poor-rate is sometimes brought forward as a reproach against the British Government in India, though it is extremely doubtful whether, as ordinarily administered, a poor rate is not rather a curse than a blessing to a country. But the kind of rate here proposed, reserved for occasions of the character we refer to, would be purely beneficial in its effect.

We have laid great stress above on the mischievous tendency of all interference on the part of Government with private trade, whether by fixing prices, or by entering into competition with the trader. There is another mode of operation, and one which has been adopted by the Bengal Government on the present occasion, the effect of which may be either to interfere with, or to further, legitimate commerce, according to the conditions under which it is carried out. We allude to the advance of money by Government to private individuals for the purpose of enabling them to engage in grain transactions. When capital is abundant, such advances are obviously unnecessary, and, as they are liable in any case to give rise to some mischief, if only by inducing inexperienced persons to attempt operations which they will probably bungle, are to be avoided. But it is quite possible that the capital in the hands of private traders may be so inadequate to an emergency of this kind as to make it necessary for the Government to come forward and assist them in the way referred to. When this is the case, it is important either that the assistance should be rendered very generally and impartially, or that it should be given on terms that will not put those receiving it in a position, as regards the cost of their operations, distinctly superior to that of men trading on their own capital. For if this precaution be neglected, the advantage conferred on certain individuals will enable them to overbid the rest of the grain-merchants, and thus unduly raise prices, on one side;

or to undersell them, and thus unduly lower prices, on the other, the effect in either case being to rob them of their legitimate profit, or to inflict loss on them, and thus lead them to restrict their operations. Such a course is, in fact, calculated to be but little less mischievous than direct competition by the Government itself. As it would be highly dangerous and inconvenient, if not impracticable, for the Government to cast advances of this kind broadcast over the country, it follows that, where it makes them, it should do so on ordinary commercial terms. On the same ground, we think, the Government should be very chary of advancing money for employment in grain transactions to others than traders, except for very special purposes, or where traders do not exist. No such objection, however, applies to advances for the construction of works, calculated to relieve a famine, which would not be undertaken without them.

The question of the suspension or remission of Government revenue demands, is one that requires the most careful deliberation. It must be remembered that the class upon whom such demands chiefly fall, are not generally the class most seriously affected by a scarcity. Up to a certain point a deficient crop is rather favourable to producers than otherwise, even in the district in which it occurs. On the other hand, it is quite possible that things may go beyond this point, and that there may be total failure, or the deficiency in the production may be so serious that no rise in price will suffice to compensate the producer. It is necessary to make sure that this point has been reached, before determining to grant suspensions or remissions which must weaken the resources of Government at a juncture when they are called upon to sustain unusual pressure. Outside the distressed tracts, producers get the benefit of high prices without any drawback, and, instead of having any claim on the Government for remissions, are better able to pay their revenue, or rents, than in ordinary seasons.

The last point we shall deal with is the vexed question of the prohibition of exports.

The question whether during a time of famine exportations should be prohibited either actually, by command, or virtually, by the imposition of a heavy duty, is a question between the comparative importance of immediate and temporary needs and future permanent interests? If the effect of the prohibition were merely to keep in the country a portion of the season's crop, which would otherwise be exported, no consideration either of the necessities of other countries, or of the loss and inconvenience to individual traders, would be a valid argument against its adoption. For, as regards the former, it is the duty of the Government to consider the necessities of its own subjects before those of other people,

even where the need is equally great on either side, and much more so, when, as would generally be the case at such a time, the need of its own subjectss i the greater ; while, as regards the latter, it must, from the nature of the case, be easier to compensate traders for any such loss or inconvenience, than to import food, or compensate its subjects for the deprivation of it. If grain is being exported on the one hand, and imported on the other, an evident loss of power is the result, meaning certainly loss of money, and probably of time also, which on grounds of mere economy would be indefensible ; and if, as may very well happen, grain cannot be imported in time to make up for that exported, the mischief done by not interfering is irreparable.

But we have to look beyond this, before we can claim to have considered the question in all its bearings. A stoppage of the supplies of other countries generally involves a very serious risk of their revenging themselves by ceasing to take them in future. Even if the country adopting such a policy enjoys a natural monopoly of the grain exported, it is still by no means certain that it will escape this penalty. For the people whom it thus deprives of their usual supplies, may find that they can do very well without them, or with less of them ; or they may discover some substitute, equally or better adapted to their purposes, elsewhere. If, on the other hand, the article exported was one produced in other countries, the people cut off from their usual source of supply, will turn their attention to new sources, and the fresh direction thus given to the trade may become permanent. Latent powers of production, or competition, may be called into action in quarters where they were not suspected to exist. Thus the question of prohibiting exportation in one season involves, in a greater or less degree, that of the advantage of the exportation in any season.

A certain school of economists, we are aware, hold the opinion that, in the present state of Indian trade, every ton of rice that is exported from the country is so much wealth sacrificed, while the native mind finds no difficulty in attributing to her large exportations of this food-grain, the liability of India to famine. Among the various arguments that could be brought against this view of the case, we shall mention here only one, which seems very conclusive, but which we do not remember to have seen urged before. The notion that her annual exportations of rice increase the liability of India to scarcity, is based on the assumption that if they did not take place, so much more rice would remain in the country. But this assumption is a palpable fallacy. The truth is that if the grain now exported were not required for this purpose, it would not be produced. A people will not go on raising more of a crop than they can consume themselves and find a foreign market for. Take away the foreign market, and they will not produce more

than they can themselves consume. If more is produced, the fall in prices that will result will lead them to divert part of the land to the cultivation of some more profitable crop. Instead, then, of the liability of India to famine being increased, or her ability to meet it being impaired, by this export trade, the opposite is the case; and if her normal exportation were three million, instead of three hundred thousand, tons of rice, she would be better able to meet a famine than she now is; for the amount, whatever it is, is a surplus store, a certain portion of which every rise in price tends to divert from its foreign destination to her own use. If she were not in the habit of raising it for exportation, she would have no such surplus to draw upon in case of famine.

This fact furnishes an additional reason against hastily adopting, in a dear season, a measure which jeopardises the future of the export trade.

It is, of course, quite conceivable that the actual emergency may be so pressing as to render all more remote considerations of subordinate importance. But a prudent Government will be slow to adopt a course which nothing but extreme necessity can justify.

We have not space to discuss now, in all its bearings, the question of a bounty on importation, raised by Mr. Daniell's pamphlet. But if we are not mistaken, the *Englishman*, in its criticism of it, ignores one very important consideration. The writer in that journal says:—

"It is quite true that a bounty on grain places it in circumstances of special advantage; that the local cost of importation exceeds the net cost of carriage; and that traders will realise as fast as practicable, with a view to re-investing their money, and obtaining another bounty. But, with regard to the last statement, the rice-merchant will simply calculate whether, on the whole, it is more profitable for him to sell or to hold on the prospect of a further rise. The fact that he can bring his grain to market at, say, a rupee a maund less than in ordinary times, is a consideration in favour of rapid transactions, whether he saves that rupee in carriage, or gets it recouped to him by a bounty at the end of the journey. But the advantage of the plan of remitting it in carriage is that, if he need, in the first place, to pay it out, he will expect a profit on it, precisely as on any other rupee which enters into his gross outlay. Sothat, practically, a rupee remitted in the cost of carriage goes further than a rupee subsequently repaid to him. Whichever shape the transaction takes, it is equally a bounty; but with this difference, that a bounty granted in the form of a reduction of railway-rates is a more efficient one than the same amount recouped in money afterwards."

This argument, no doubt, holds good of the transportation of grain already in India, from one part of the country to another, but it leaves untouched the case of importations of grain into India from other countries. Whether a bounty on such importations is desirable, or not, is a point we do not propose now to discuss, but it is evident that its place cannot be supplied by a reduction of railway rates.

JAMES W. FURRELL.

ART. XI.—THE RICE TRADE IN BENGAL.

SEVERAL questions connected with the scarcity and apprehended famine in Bengal are discussed in another article in this number of the *Calcutta Review;* and it is not proposed again to enter into any of the considerations of the present crisis, but merely to dwell on one statistical feature, the importance of which is made evident by the crisis, and has acquired an exceptional interest which in reality is as permanent as it is important. Much information on the subject of the internal traffic and distribution of rice in these provinces has already been obtained under recent orders of the Lieutenant-Governor of Bengal, and enquiries are still on foot, the full results of which have not yet been reaped. A thorough treatment of the question cannot be promised; but such facts and figures as are available and have been courteously placed at our disposal by the Bengal Government will be used.

It may be unnecessary to premise, what must be known to our readers, that rice is divided in Bengal into two distinct main crops, locally known as the *aoos* or early and the *amun* or winter rice. The early rice is mostly raised upon the high-level lands; it is sown with the first showers of the spring and gathered in July and August. It requires more attention in cultivation than the *amun*, and is more liable to failure from the accidents of the seasons. It is not transplanted but reaped from where it is sown. The winter rice is of two principal varieties—one sown broadcast and the other transplanted. The transplanted variety is the commonest kind of rice in Bengal. In the first instance it is sown on high land. Afterwards, when the rain renders the soil sufficiently moist and the seedlings are about a foot high, they are transplanted to a more marshy soil which must be such as in the rains is covered with water. The rice grows in the water, knee or thigh deep. It is sown at the same time as the early rice, transplanted in August, and reaped in November, December and January. The winter rice, sown broadcast and not transplanted, is sown in deep marshes, and as the water rises, the rice grows with it and the stem at times attains the height of twelve or even twenty feet. Of all kinds of rice this is the most rapid in its growth, frequently shooting up twelve inches in twenty-four hours as the inundation rises. Some species of this rice are capable of bearing submersion for seven or eight days if the water which has risen suddenly be clear. If it be submerged in foul water the plant dies in a day or two. This description of winter rice is sown and reaped at the same time as the trans-

planted species. There is another principal kind of rice known as the *boro*, which is a spring crop raised in marshes and on low alluvial soil. This crop is reaped in April, May and June, and its success depends much on irrigation. Besides these descriptions of rice, there are innumerable minor varieties familiar to the peasantry, many of which are peculiar to particular localities.

Over the whole of the rice area of Bengal the winter rice is the principal crop, save in exceptional localities such as Nuddea where two-thirds of the rice lands are cultivated in *aoos* and one-third in *amun*, and in Moorshedabad where the *aoos* rice predominates in the eastern parts of the district. In all rice districts there is, however, an *aoos* cultivation, and in surplus districts this crop is usually consumed by the cultivators, leaving as much of the *amun* as possible for export. It may be said generally that five-sixths of the rice in Bengal is *amun*. The cultivation of *boro* rice is general, but it is not grown to a large extent in any district.

Rice is the principal article of diet over Bengal Proper, and, among Bengalees, is often the only food eaten; pulses, fish, vegetables, oil, salt, spices and other condiments are only added to give the rice a relish.

The districts of the whole of Bengal Proper, or the great alluvial and deltaic plain between the Himalayas and the Bay of Bengal, and of Orissa, or the diluvial territory between the hills and the sea connecting these provinces with Madras, a level area of nearly one hundred thousand square miles, uninterrupted by a single hill, rich in black mould and of boundless reproductive fertility, subject to recurrent inundation and enjoying natural facilities such as no other country in the world possesses for internal commerce and irrigation—constitute the great rice producing tract of Bengal which is ordinarily much more than self-supporting. In the autumn months the whole country seems sown with rice; the early crop stands thick and yellow on the high lands, while the lower grounds are waving with a wide and unbroken sea of green. The surplus produce of this area finds its way, generally speaking, to three great marts from which the rice trading operations of the province are conducted. The imports into Calcutta have to find food for the metropolis, for foreign exportation and for export up-country; Chittagong is the centre of a large and rapidly growing export trade by sea; Patna is the emporium of the trade for Behar and the North-Western Provinces.

The imports of rice into Calcutta in an ordinary year may be set down at about twenty millions of maunds or 714,285 tons; about ten millions of maunds are annually exported from Calcutta by sea; about seven millions are consumed by the metropolitan population, and it has been estimated that about three millions pass through Calcutta for up-country export.

The Financial Department of the Government of India has recently issued a table of "Statistics of the Export of Rice and Paddy from British India *to foreign Countries* for the 18 years ending with 1872-73," of which we republish the total quantities, though we confess we do not entirely trust the figures and would have preferred a comparative statement showing the total quantities of *Exports by Sea.* The return is, however, of interest as illustrating, first, the rapid increaseof exportation which culminated in the year before the disastrous famine of 1865-66; and, secondly, the magnitude of the Exports from British Burmah, a country the rice resources of which seem almost boundless, and whence the Government relies largely for exports into Bengal during the present season.

Statement of Export from British India to foreign countries from 1855-56 *to* 1872-73.

Years.	Quantities of Rice and Paddy collectively exported to foreign countries from				
	Bengal.	Bombay and Sindh.	Madras.	British Burmah.	Total.
	Tons.	Tons.	Tons.	Tons.	Tons.
1855-56 ...	297,651	5,128	128,755	270,077	701,611
1856-57 ...	302,613	5,085	121,888	158,997	588,583
1857-58 ...	290,056	6,774	130,575	344,489	771,894
1858-59 ...	169,473	2,503	87,897	190,337	450,210
1859-60 ...	165,082	1,656	105,848	127,508	400,094
1860-61 ...	251,680	5,571	133,203	218,586	609,040
1861-62 ...	342,315	3,932	77,484	264,200	687,931
1862-63 ...	376,394	5,508	62,698	268,759	713,359
1863-64 ...	399,741	882	72,168	341,906	814,697
1864-65 ...	404,609	977	71,089	424,859	901,534
1865-66 ...	256,346	749	65,410	373,509	696,014
1866-67 (eleven months.) ...	155,315	4,800	65,180	180,141	405,436
1867-68 ...	266,182	8,415	85,385	245,089	605,071
1868-69 ...	248,553	12,304	94,983	386,958	742,793
1869-70 ...	192,691	11,642	69,461	256,938	530,732
1870-71 ...	274,278	19,446	99,177	411,489	804,090
1871-72 ...	256,259	27,469	118,320	463,515	865,563
1872-73 ...	356,953	20,299	104,143	683,303	1,164,698

The actual exportation of rice by sea from Calcutta* was 9,170,223 maunds or 339,657 tons in 1871-72, and 9,781,842 maunds or 362,489 tons in 1872-73. Of this amount the principal consignments were as follows:—

	1871-72. Maunds.	1872-73. Maunds.
Great Britain	1,333,446	1,473,924
Bombay	2,668,154	1,886,945
Mauritius	1,720,060	2,633,285
Gulfs	1,221,574	936,666
China	457,022	189,115
Madras	141,138	346,752
Ceylon	288,573	741,789
Bourbon	249,035	140,575
Australia	134,698	121,329
Cape and St. Helena ...	53,954	152,200
West India Islands ...	.....	766,547
Batavia	.....	219,996
South America... ...	611,251	.....

It is not easy to calculate the actual consumption of rice in Calcutta. The population of the metropolis itself has been said to consist of not less than nine hundred thousand inhabitants, thus:—

Calcutta Proper	447,601
The Suburban Municipality	257,149
The Further Suburbs known as the North and South Suburban Towns	89,895
Howrah	97,784
Total ...	892,429

But it must be recognised that the towns of Serampore, Chinsurah, and Hooghly, and Barrackpore and Dum-Dum, all of them in the immediate vicinity of Calcutta, are practically outlying Suburbs; and that of the vast population of the districts of Hooghly and the 24-Pergunnahs a large part is in fact

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* These figures are derived from the Commercial Annual, or a Tabular Statement of the External Commerce of Bengal during the years 1871-72 and 1872-73; published by the Collector of Customs, p. 52. It is assumed that the figures are accurate, but the writer has tried to reconcile the totals with those published by the Government of India without success. The Financial Department figures give the whole exports from Bengal at only tons 256,259 in 1871-72, and at tons 356,953 in 1872-73, an export confined "to foreign countries" it is true, but that expression is not sufficiently explained. If it includes all countries not under the Government of India and no other, the Government figures, allowing for the exports from Chittagong and Orissa, will not correspond with these given in the Collector of Customs' Statement.

connected with Calcutta. The census returns, which do not profess to give the floating population of the city, much understate the actual number of its inhabitants. Allowing for a metropolitan population of from a million to a million and a half of souls who are dependent for their support on the import of food grains into the city and its environs, and a daily consumption per head of three-quarters of a seer of rice or six maunds annually, the total annual consumption will approximate to the estimate we have accepted of seven million maunds.

It has been assumed that about three millions of maunds pass through Calcutta annually for up-country export, but no accurate information is available on this point. Although the exports by rail are small, not exceeding a few thousand maunds, the river traffic is known to be very large.

The largest share of the supply of rice for Calcutta is furnished by the littoral districts that fringe the Bay of Bengal. Between seven and eight million maunds are poured in annually through the Calcutta canals which connect the Soonderbuns, Backergunge, parts of Jessore, and the country about the Megna river with Calcutta. The imports into Calcutta of rice and paddy by the Calcutta canals during the years 1867-68 to 1871-72 are registered as follows :—

	Mds. of Rice.		Mds. of Paddy.
1867-68 ...	9,384,050	...	492,155
1868-69 ...	10,021,275	...	1,505,625
1869-70 ...	3,306,800	...	920,275
1870-71 ...	6,984,200	...	701,450
1871-72 ...	5,514,673	...	*not specified.*

The subjoined table shows the imports of rice into Calcutta by the canals during the year 1872-73 :—

By the Circular Canal.		*By Tolly's Nullah.*	*Total.*
Mds.	...	Mds.	Mds.
6,701,800	...	1,927,975	8,629,775

Besides rice there was an import of paddy or unhusked rice :—

By the Circular Canal.	*By Tolly's Nullah.*	*Total.*
Mds.	Mds.	Mds.
97,175	1,293,425	1,390,600

This supply was conveyed in 31,085 boat loads, and is registered from the districts of the 24-Pergunnahs, Jessore, Backergunge, Dacca, Sylhet, and Tipperah. It is a matter of regret that the Calcutta Canals returns do not at present show the places of shipment in detail, but arrangements have now been effected by Government for ascertaining the future transactions of all the large export marts, and for grouping the transactions of the smaller places together according to districts.

As might be expected, the 24-Pergunnahs district imports very largely into the metropolis. It is the practice to sell in Calcutta the produce of the immediate neighbourhood as soon as the harvest is over, and to supply the deficiency thus caused by importation from Midnapore and other districts. In other parts of the district which are easily accessible and very populous, such as Baraset, Dum-Dum, and Barrackpore, rice is imported from Calcutta. The Southern and Soonderbuns sub-divisions of the district, Basirhaut, Satkirah, and Barripore export largely, and their produce finds its way to Calcutta through the Canals. From Diamond Harbour the export is enormous: the Magistrate estimates it at 25 lakhs of maunds, though this is probably an exaggeration; and the bulk of it comes into Calcutta along the Hooghly or by road.

During the year 1872-73, 55,018 maunds of rice and 1,215 maunds of paddy were imported into Calcutta by the Port Canning Railway, all of which was derived from the same sources as supplied the canals with their traffic.

The imports of rice to Calcutta along the Eastern Bengal Railway of late years have been as follows:—

				Mds.
1867-68	...	...	...	198,225
1868-69	...	...	...	299,313
1869-70	...	...	...	183,442
1870-71	...	...	...	113,521
1871-72	...	...	...	125,865
1872-73	...	...	...	814,277

It is satisfactory to note the increase in the traffic since the opening of the extension to Goalundo, but the quantity of food-grains carried by the railway always has been and is still very small. The supplies are received from Pubna, Furreedpore, Dinagepore and the Eastern districts.

The Soonderbuns of Jessore supply their quota to Calcutta, but the importation is less than it is from the 24-Pergunnahs or Backergunge. The northern parts of this district import largely from the South and the exports of this district by sea are considerable. 110,200 maunds were exported last season from Morrellgunge for the Mauritius and Ceylon.

Backergunge has the reputation of being the finest rice district in Bengal, and a very large proportion of its exports go to Calcutta. The rice is of superior quality and exported at once instead of being sold in the local markets. There are no data from which we can estimate the Calcutta import of rice from Backergunge, but it probably amounts to between two and three million maunds. Backergunge rice is also extensively imported into the neighbouring districts; the drain is so great and the demand for Backergunge rice so general that the district is compelled in some

measure to feed itself by importation which it derives from Sylhet Dacca, Mymensingh, and Tipperah. This rice is imported during the rainy season, and the people of Backergunge are said to rely on this imported crop for their maintenance in the latter part of the autumn and for a portion of the cold weather as well. Fureedpore exports to Calcutta by river and by rail but not in large quantities. The northern part of this district is especially dependent on importation from the surrounding districts. Pubna also exports to Calcutta and it receives supplies in considerable quantities from Bogra, Rungpore, Mymensingh, Dacca, and Sylhet, chiefly for exportation, a small quantity only being retained for local consumption. This district is much more than self-supporting.

The great rice producing districts of the Rajshaye division export largely into Calcutta. The whole of Northern Bengal, which is now suffering so much from short crops, in ordinary years has an enormous surplus produce. From the district of Dinagepore alone, which has been described as one huge rice field, a million and half of maunds were last year exported down the Attrai river to Calcutta through the Matabhanga river. The exports from the marts on the Attrai river in Dinagepore find their way to Calcutta; those from the marts on the Poornabubha, Kooleck and Tangun in the same district are sent up-country. The principal figures of rice export from the marts on the Attrai river during 1872 have been reported by the Collector :—

	Maunds.
Patiram	159,082
Koomargunge	162,361
Jeebun Bazaar	128,200
Fakeergunge	110,599
Chandgunge	84,608
Balooghat	81,937
Kalleegunge	80,000
Chuck Gopal	76,078
Rungamuttee	80,580
Paglee Bunder	74,531
Sumjheea	57,541
Brohmopore	37,001
Moheepore	22,137
Kenchun	18,000
Sahebgunge	4,500
	1,177,155

These fifteen marts are all on a portion of the Attrai river not more than 60 miles in extent in the district of Dinagepore, and according to the merchants' own books have exported these amounts

to Calcutta; and this does not take into consideration other very large rice marts in the Dinagepore district, such as Khansama, Bhooshee, Sheebgunge, Mahadebpore and many smaller places which all export to Calcutta. The Bogra district is said to import into Calcutta about six hundred thousand maunds annually. The two great rice marts of this district are Hillee and Dupchanchia which evenly divide the traffic. Hillee is situated on the river Jumona; Dupchanchia on the western bank of the Nagar, a branch of the Karatia river. The latter mart exports the rice crops of the Adamdighee tract which produces some of the best rice in Bengal, and where in 1872 the produce was so bountiful that rice was suffered to ripen and wither away uncut, because sufficient labour could not be obtained to harvest it. The town of Hillee is to be a station, and has always been held to be an obligatory point on the Northern Bengal Railway, and Dupchanchia will be connected with the railway by a good feeder road which has already been taken in hand. There is a brisk importation down the Bhagiruttee river into Calcutta from the marts of Azeemgunge and Baloochur in the Moorshedabad district. The Rajshahye district exports little direct to Calcutta. It transmits, however, a good deal of rice into Moorshedabad which is locally consumed in the eastern parts of that district. A large export of rice leaves Rajshahye for up-country consumption. The district of Rungpore exports its immense surplus,—amounting to at least two or three millions of maunds,—to Dacca, Pubna and Fureedpore and also northwards into the Cooch Behar division. Of the supply sent down South a certain quantity finds its way to Calcutta, but the greater proportion is, it is believed, destined for the mofussil and up-country markets.

It is remarkable that Serajgunge, the commercial emporium of Pubna, Mymensingh, part of Bogra, Rungpore, and Dinagepore, and whence the annual exports are estimated to exceed a million sterling in value, does not export rice largely. The export to Calcutta does not exceed 35 or 40,000 maunds. It is principally the jute trade that has gained for Serajgunge its pre-eminence. At the same time the exports from Serajgunge northwards are considerable. Steamers belonging to European Companies carry rice from this mart for the Bengalee coolies who work in the tea producing districts, and generally Serajgunge exports rice northwards into Cooch Behar and the Assam province.

The Northern Bengal line of Railway from Kooshtea to Darjeeling which traverses a portion of Pubna, Rajshahye, Bograh, Dinagepore, and Rungpore will, when carried out, tend more than any thing else to develope the great resources of the districts of the Rajshahye division. From Rungpore it was last year (1872-73) reported by the Magistrate that the yield of rice was con-

sidered too good by the ryots as the prices were thereby kept down. The same was observed in Bograh; but these ideas will presumably cease to exist when there are additional means of exit for the superfluous produce.

The Eastern Bengal Railway, as we have seen, imports food-grains to a very small extent. The East India Railway has been equally unsuccessful in attracting this traffic, and in a favourable year does not import more than a million maunds of rice to Howrah. This amount was exceeded in 1871, but in 1872 the imports fell off considerably, and during the first-half of 1873 there was a further decrease. The greater part of this importation comes from the districts of Beerbhoom and Burdwan, and to some extent from Moorshedabad. The Hooghly district supplies no rice to Calcutta. There is a surplus cultivation of rice in the inland parts, but insufficient for the supply of the densely populated eastern Thannahs bordering on the Hooghly river, and large importations are always effected from Calcutta, and from the large river marts at Bhuddressur and Jhikrapoota in French Chandernagore, which are both within the district. The portion of imported rice from these marts to be consumed in the Hooghly district finds its way to Baboogunge, Boidyabatty, and Sooraphoolee markets. The rest is re-exported.

The Burdwan district exports to Calcutta. Considerable imports are received from Rungpore and Dinagepore, but the great proportion of this is passed on to Calcutta and a good deal into Nuddea. The east of Nuddea receives rice, though in small quantities, from Rungpore, Bogra, Dinagepore, Dacca, and other districts; and the west of Nuddea gets supplies from the large Burdwan marts of Cutwa and Culna. Nuddea does not, as a rule, export rice. Howrah imports on the whole, but chiefly from Midnapore and Balasore by land; the Shampore Thannah of this district produces rice of a fine quality which is exported to Howrah and Calcutta. Food is seldom, if ever, exported from Bancoorah, but in ordinary years sufficient is produced to support the inhabitants. When there is a succession of bad years rice is imported from Midnapore, Maunbhoom, and Raneegunge. Beerbhoom exports largely. But the principal rice producing tract among the Western districts is Midnapore. It is estimated that about 2,000,000 acres of this district are sown with rice, and it is well known that the large rice fields of Hidgelee, and all the low lands east of the district, are among the most fertile in Bengal. The ordinary exports of this district are estimated by the Collector at 15,000,000 maunds, but it seems that the calculations by which this total has been arrived at are erroneous. At twelve maunds of rice an acre the whole district outturn would amount to 24 million maunds. The population of the district is two and half-millions, and at a consumption of six maunds

annually per head they would consume 15 million maunds. Even this estimate would leave nine millions of maunds available for seed and exportation. Allowing two millions for waste and seed the available exports will be seven million maunds, and it must be admitted that this total is very large indeed. The great bulk of this finds its way to the metropolis along the Russulpore estuary and up the Hooghly in fleets of native boats. The irrigation canal from Oolooberriah to Midnapore is now locked all along and it is hoped it will be navigable in future. Last year, 1872, it was in a very crippled state, but it took nearly four hundred thousand maunds of rice to Calcutta, and as the Russulpore route is very dangerous, and involves the inconvenience of waiting—even for weeks it is said—at the mouth of the estuary for favourable weather, no doubt exists that the canal traffic will much increase and be very profitable. The other great rice route from Midnapore is along the Grand Trunk Road inland. Exports follow this route into Howrah and Hooghly and into Bancoorah. The over-populated thannahs to the north-east of Midnapore also receive large imports, calculated by the Collector to exceed a million and-a-half of maunds, from the central and north-western parts of the district. Ghatal, to the north of the district, is at the present time a remarkable commercial centre for the exports and imports which find their way up the the Roopnarain river to that part of the country.

It remains to indicate the supplies derivable from Orissa. The sea exports from Cuttack, Pooree and Balasore to foreign countries and British Indian ports beyond the Bengal Presidency as obtained from the Collector of Customs in Calcutta, in 1872-73, were as follows :—

Whither Exported.	Cuttack, maunds.	Pooree, maunds.	Balasore, maunds.	Total Maunds.
To foreign countries ...	8,736	6,286	8,667½	23,689½
To British Indian Ports beyond the Bengal Presidency	91,396	137,950	185,262½	414,608½
Total ...	100,132	144,236	193,550	438,298

but it must be remembered that these figures do not include the exports to Calcutta or to any other port within the Bengal Presidency.

The present Collector of Balasore reports of his district :—

"Balasore is a rice-exporting district, and exports both by sea and land. Export by sea takes place from seven different ports situated on the coast between the Sooburnorekha and Byturnee

rivers, from which rice is carried to Calcutta and the Madras ports, and in smaller quantities to Ceylon, the Maldives and Laccadives. The following figures show the quantities of rice annually exported by sea since the famine :—

	Mds.
1868-69	128,000
1869-70	300,000
1870-71	400,000
1871-72	483,000
1872-33	403,000

"Exportation by land takes place northwards along the Trunk Road, but data as to its amount are not forthcoming; the rice is carried in carts and on pack bullocks; its destination is Midnapore, and even Raneegunge and Gurbetta."

Upon the whole Mr. Norman considers that the Balasore exports of rice by sea and land together cannot be placed lower than twenty-two thousand tons or nearly 600,000 maunds annually. It is probable that about two hundred thousand maunds of this, or a third of the whole export, finds its way to Calcutta; nearly as much to the Madras and foreign ports, and the remainder inland.

There are considerable exports from Pooree and Cuttack also, although the exports to Calcutta are not so large as they are from Balasore. A good deal of rice leaves Pooree by land for Ganjam and Berhampore, and a larger proportion leaves these districts for the Madras ports than is exported thither from Balasore. The Telinga merchants export from Cuttack, from the ports of False Point, Muchgaon, Chandbally, and Damrah; the export of rice from False Point alone amounted to 91,344 maunds during 1872-73. The annual export from Pooree and Cuttack into Bengal is probably about fifty thousand maunds.

The total imports of the twenty millions of maunds which are annually consumed in Calcutta and its environs and exported from Calcutta may be summed up as follows :—

	Maunds.
By the Calcutta Canals	7,500,000
From the 24-Pergunnahs, and other neighbouring districts not by the Canal, and along the E. B. Railway, not shown elsewhere	2,500,000
From the Rajshahye Division not shown elsewhere	3,500,000
By the E. I. Railway, ditto	1,000,000
From the Burdwan Division, ditto, exclusive of Midnapore	2,000,000
From Midnapore	3,250,000
From Orissa	250,000
	20,000,000

The second emporium of the Bengal rice trade is Chittagong Mr. Hankey, the late Officiating Commissioner, has reported of the trade of this port as follows in his last Administration Report :—"In Chittagong the principal export trade is in rice, of which 2,823,255 maunds or 104,565 tons were exported last season, against 1,540,809 maunds or 57,069 tons in the previous year. This business has greatly increased of late years. It is chiefly in the hands of European merchants, but there are one or two native firms. The bulk of the rice comes from Tipperah, Noakhally (including the churs of Sundeep, Hatia, &c.), and the island of Dukhin Shabazpore, which belongs to Backergunge. It is brought down by *beparis* in boats, and during the cold weather whole fleets of these may be seen making for the mouth of the Kurnafoolee from the northward. These *beparis* are not generally men of capital ; they purchase rice in small quantities from the producers, and bring it down in their own boats. On arrival they deal with the merchants direct. Business is done to a certain extent through brokers, but under the immediate superintendence of the merchant, not as in Calcutta, where they employ *baniahs*.

"A little rice from the district of Chittagong itself is exported, but the merchants prefer the Tipperah and Noakhally grain, which, from the manner in which it is prepared, is better able to stand a sea-voyage." Chittagong rice is said, the Collector adds, "to be less carefully manipulated, and, being grown for eating purposes, is too expensive for export." Except in the south of the district, there is no very large surplus, production being not much more than sufficient for local consumption. A little rice is indeed imported into Chittagong for food, but the quantity is believed to be inconsiderable. What foreign rice does come to market is brought from the neighbouring districts of Tipperah and Noakhally, and occasionally from Arracan.

The Commissioner continues:—"The ships that take away the rice from Chittagong are generally European or American. They either come in ballast or bring salt from Liverpool. A few bring earth-oil, and sometimes timber (to order) from Rangoon. The rice is sent to Galle, Colombo, Cochin, Bombay, and other Indian ports. It also goes to the Mauritius. During the past season 453,376 maunds of rice were exported to the Mauritius. No rice has been sent to Europe during the last two years, as Chittagong cannot compete with Calcutta as regards freight, nor with Burmah as regards cost of rice."

The district of Noakhally besides exporting rice to Chittagong, exports also to Calcutta and Dacca, and Akyab and Rangoon. Tipperah is a very large rice producing district and it is estimated that its exports are not less than four millions of maunds annually.

The bulk of it is said to go to Naraingunge in Dacca for Western export. It is also exported to Fureedpore, Pubna, and one or two other districts. A small quantity finds its way in to the Frontier Hill States. The rice from the south-east of the district which has no water communication with the westward is carried to Chittagong by boat and absorbed in the export trade there. Sylhet is also essentially an exporting district. The surplus produce finds its way principally north to the Assam tea districts and east into Cachar, and this district adds also to the quota that is supplied for the consumption South and West by the fertile rice fields of the Dacca division. Cachar is said to import between two and three hundred thousand maunds from Sylhet. The rice export from Mymensingh is estimated by the Collector at about 2,763,500 maunds. From the east of the district it is exported to Dacca and is absorbed in the convoys of boats carrying rice to Calcutta and the up-country markets. From the north it is exported to Assam. There are always very large imports into the district of Dacca. It is calculated that the populous sub-division of Moonsheegunge, where the inhabitants average 1,031 souls to the square mile, imports at least a million and a half of maunds for its own consumption. This supply comes from Backergunge, Mymensingh, Tipperah and Sylhet in the order given. The rest of the district is self-supporting and much of it exports, but not to any considerable extent. The rivers of the Dacca district are great channels of exportation and much rice from Eastern Bengal passes through this district and is re-exported at its marts for consumption up-country.

The province of Assam does not usually export or import rice largely, but the tendency is to import. The tea factory labourers are dependent on imported food which is mostly brought into the country by the river steamers from Serajgunge and Dacca. The coolies, Bengalees, and other foreign residents in Assam all consume imported rice, but this is due, not so much to the circumstance that a sufficient quantity of rice is not raised in the province, as to the existence of a prejudice, or, as the Commissioner says it may be, "a well-founded objection, derived from experience," against the use of Assamese rice by any but native-born Assamese. There is also a steady import into Assam from Goalparah. The dealers of Goalparah recently gave in returns to show that over 500,000 maunds of rice were imported from Bengal into that district, and no doubt nearly the whole of this passes on into Assam. The import into the tea districts of the province may probably decrease in time and as cultivation spreads, but at present it is probably not much short of three quarters of a million maunds. Among the mountainous tracts, the Khassiah Hills import largely. The supply is derived from Mymensingh

and Sylhet, and is estimated by the Deputy Commissioner to amount to four or five hundred thousand maunds in the year. In the Garrow Hills the rice, as a rule, suffices for the wants of the people; only in time of scarcity they import from the plains of Mymensingh and Goalparah. The head-quarters station of Tura is reported to be entirely dependent on the plains for its supplies. During the present season of anxiety it is fortunate that the rice harvests in Assam have been fairly good, and exports from the province, instead of imports, have this year taken place.

The Cooch Behar division imports on the whole, but very slightly it is said, and the district of Julpigoree exports in small quantities. Goalparah imports from Rungpore, Mymensingh and even from Serajgunge, but the imports are, as has been intimated, mostly passed on to Assam. The district supports itself. Cooch Behar district imports inconsiderably from the same sources, and exports a little by land carriage to the Dooars. Into Darjeeling, rice is imported from the Terai, but the largest share of the station supplies is imported or passed on from Kishengunge in Purneah and from Julpigoree, Rungpore, and Dinagepore.

The importation of rice into Behar is large; and rice is a principal food crop in Behar, though among the poorer classes and especially in the district of Sarun, maize and barley are in a great degree the food of the people. It may be roughly stated that in Behar ordinary cultivators eat their meals, half rice and the other half in cereals, millet, or pulses.

The emporium of the up-country trade is Patna. The city of Patna has been described as a centre for collection and distribution; and its position on the Railway and on the Ganges just where the Ganges, Gogra, Gunduck, and Soane become united, and where the traffic branches off to Nepaul, gives it in this respect great advantages.

The Ganges borne river traffic with Behar is now registered by Government at Sahebgunge, an important mart east of Bhaugulpore and to the extreme north of the Sonthal Pergunnahs. Sahebgunge is most favourably situated as the place of registry, above the point where the most westerly of the Ganges mouths leaves the main stream for the sea and below the junction with the Ganges of all the great tributaries that flow through the Behar districts. During the year 1872 the chief despatches of rice registered at Sahebgunge were:—

	Mds.
From the Maldah and Dinagepore districts, about...	1,500,000
„ Rajshahye district, about	320,000
„ Dacca and its neighbourhood, about ...	420,000
„ the Moorshedabad district, about ...	320,000

Rice from Central and Eastern Bengal was most largely consigned to—

	Mds.
Mirzapore, which took about	110,000
Benares, " "	300,000
The Ghazeepore district, which took about ..	760,000
" Tirhoot and Saruu districts took about ...	580,000
" Patna district took about	760,000

These quantities, as was remarked in the Government Resolution, seem large, but after all 1,340,000 maunds of rice is comparatively an insignificant contribution to the food-supplies of the thirteen millions of people in the Patna division, and would barely feed one-third of a million of people for one year. In point of fact the river traffic is doubtless much larger than has been registered: the year 1872 was the first year of registration, and the arrangements were not altogether complete and will be improved by experience; but under any circumstances it is to be feared that the figures will always give an under-statement of the full importation. It is impossible to entirely stop the system of bribery, for in the first place the boatmen and manjees dislike been stopped and overhauled and would always sooner pay something to avoid it, while the threat even of disturbing the cargo to measure the boat would be quite enough to make the owner give a present to avoid the annoyance and damage that would be caused to him; and again at a place like Sahebgunge many boats may go by with a favourable wind during the rains without the possibility of their being brought to. These facts have been pointed out by Mr. W. LeF. Robinson, the Magistrate of the Dinagepore district, who has also shown by an interesting examination of the up-country traffic derived from the merchants' account of the large marts of that district, that the Dinagepore exports are much larger than have been registered. The Sahebgunge returns register an up-country export of 969,575 maunds from Dinagepore. Mr. Robinson, however, shows that from six marts on the Poornabubha river alone, the up-country exports amounted in 1872 to 985,009 maunds, and this does not include the large mart of Raigunge on the Kooleck, whence the exports are about 700,000 maunds, "to say nothing of Kalkamara, Assanee, and other marts on the Tangun, Poornabubha, and other smaller streams which all lead to the Mahanuddee and so to the North-West." The Magistrate of Purneah also has drawn attention to the fact that the large consignments of rice which come down the Koosee river and go up-country to Behar and the North-Western Provinces necessarily escape registration as they enter the Ganges above that place. Even, however, with these defects, it must be admitted the results of the Sahebgunge registration are most valuable and interesting, and have thrown a

flood of light on matters of which we were previously in the greatest ignorance. They give an approximate clue to the importations and exportations between Bengal and Upper India such as we never before possessed, and experience and care in registration will go far to remedy the defects which were indeed inevitable on a first experiment. It is, it may be said, a matter of surprise and congratulation that the returns are so valuable as they really are.

The imports of rice into Behar and the North-Western Provinces by Railway are more difficult to calculate, as the traffic returns of the East Indian Railway do not record this information in a very intelligible shape. Altogether, it is apparent that the up traffic of this line in rice during 1872 amounted to about two millions of maunds, but it is not apparent what amount of this was destined for the Patna division, and the intermediate stations, and how much was consigned to the Upper Provinces. Roughly speaking, as far as can be gathered from the statements, it may be concluded that about half this amount was for Behar and half for the North-West. This unpractical nature of the East Indian Railway returns is much to be regretted; and their defects are the less axcusable as the returns of the Great Indian Peninsular Railway are perfectly clear and well arranged. Perhaps in future years the statements of other Railway traffic may be assimilated to these. The Lieutenant-Governor of Bengal, as we are told in the resolution on the Sahebgunge traffic, "has submitted to the Government of India a statement of the traffic returns he would wish to receive and have published for general information regarding the East Indian Railway and Eastern Bengal and Mutlah Railways." We may next year expect more information on the subject of the movement of food-grains by rail.

The districts of the Bhaugulpore division generally support themselves with rice and export rather than import. The produce of Monghyr and Bhaugulpore is inferior and scarcely ever finds its way into Bengal. In former years, however, large quantities of rice have been exported westwards from these districts by rail and by boat, but in 1872, for some reason which is not explained, the exportation was next to nothing. Purneah, which in all respects is more of a Bengal district than the other parts of the division, exports both to Calcutta and the up-country markets. There is also a rice trade from Purneah into Darjeeling. There is usually a very large importation of rice into the northern part of the Bhaugulpore district from Nepaul.

The vast and wealthy district of Tirhoot both exports and imports rice. The northern subdivisions of Seetamurhee, Mudhubunnee, and Durbhungah, bordering on Nepaul, are extensive rice

growing tracts, and export, especially into the districts of Sarun and Shahabad. There is an import into the sudder subdivision and southern parts of the district from Maldah, Bhaugulpore, Monghyr, and Purneah. Rice also comes into Tirhoot from Bengal Proper along the river. Only small quantities are said to be imported from Nepaul. Chumparun also ordinarily exports rice, for the most part into Sarun, Patna, and Tirhoot. Food, on the other hand, is largely imported into the over-populated district of Sarun even in ordinary years. A large quantity of rice finds its way from Tirhoot, Chumparun, and Nepaul, and a smaller quantity comes by the river from Central and Eastern Bengal to Revelgunge, Dooreegunge, and one or two other large marts on the Gunduck and Ganges, whence it is distributed into the district. The Ganges traffic returns give 361,520 maunds of rice imported into Sarun. The Magistrate considers that this is below the usual import. He states that from four to five hundred thousand maunds are annually landed at Revelgunge alone, "and if to this be added the amount received at other places, it appears likely that the ordinary imports from down country must equal nearly six lakhs per annum." It is estimated that from 15 to 20 lakhs of maunds of rice are imported into the Sarun district from the Nepaul Terai. Shahabad imports rice from Gya and Palamow and also from Bengal. The imports are usually not very large. The Patna district imports and exports. The south-east part of the district, comprising the Behar subdivision, exports, the remainder of the district imports rice, chiefly from Bengal. The Patna district is, as a rule, not dependent on outside places for its sustenance, and it has large marts of its own most conveniently situated in respect of rail and river communication for obtaining supplies when required. In ordinary years the rice crop grown in the Gya district is sufficient for the consumption of the people, and exports and imports are inconsiderable. In the present year and when there is scarcity, the merchants import their rice from Patna.

The traffic in rice in the Chota Nagpore division is inconsiderable. The extensive district of Lohardugga exports somewhat into Behar, the district of Singhboom in the south-east of the division also exports slightly, Maunbhoom exports eastward to Bancoora and westward to Hazareebaugh, but all these transactions are insignificant. "Articles of commerce are still conveyed chiefly on the backs of pack bullocks," though carts are coming into use where roads are opened out; but the means of communication in Chota Nagpore are very deficient. Many new provincial roads in the division are now under active construction.

In conclusion, it may be convenient to summarize briefly the generalisations we have arrived at in the course of this article,

We have given the principal directions and quantities of the traffic of rice in Bengal as follows :—

	Maunds.
Exports from Bengal into Calcutta for export by sea	10,000,000
Exports from Bengal into Calcutta for consumption in the metropolis and its environs ...	7,000,000
Exports from Lower, Central, and Eastern Bengal into Behar and the N.W.P. for consumption—(Behar 3½ million and the N.W.P. 2½ million maunds)	6,000,000
Exports from the Soonderbuns and Chittagong by sea	3,000,000
Exports from Orissa by sea other than into Bengal Ports	1,500,000
Exports from Bengal into Assam	1,000,000
Total ...	27,500,000

Or, in another form, out of the surplus produce of the rice districts of Bengal sixteen millions are exported out of the Bengal provinces :—

	Maunds.
From Calcutta by sea	10,000,000
„ Chittagong, &c., by sea	3,000,000
„ Orissa by sea	500,000
Into the N. W. P. inland	2,500,000
Total ...	16,000,000

and eleven and a half millions are consumed by the importing tracts within the provinces :—

	Maunds.
By Calcutta, &c.	7,000,000
„ Behar	3,500,000
„ Assam	1,000,000
Total ...	11,500,000

H. J. S. COTTON.

LIMITATIONS.

I.

Would you loose the tangled skein,
  Subtle strength of human wit?
Try the time-worn knot again:—
  'Tis not yours to alter it.

Ever over Nature's scene
  Clouds and changing glories flit.
What does all the pageant mean?
  Guess,—you cannot alter it.

Wherefore makes the human swarm
  Toil that few may e'er remit,
Plodding on in calm and storm?
  Strive,—you cannot alter it.

Or be unto duty's sway
  Consequence or conscience knit,
Wrong or right be what it may,—
  Thinking will not alter it.

Be it fact that you are free,
  Be all done and pondered writ
In the page of destiny,—
  Puzzling will not alter it.

What avails the righteous will?
  Millions unto wrong submit.
What the issue? good or ill,
  Dreaming will not alter it.

Intuition, we suppose,
  Saves the soul with sorrow smit.
Can or cannot mind disclose
  Truth,—it cannot alter it.

Is there any God ? you cry,
  One for prayer and praises fit,
Not a cold fatality ?
  Muse,—you cannot alter it.

Are the dead all dead and done ?
  Is the grave with promise lit ?
Is there life when life is gone ?
  Ask,—you cannot alter it.

Things were made not, no nor can
  Answer come by human wit.
Brooding o'er the fate of man
  Surely cannot alter it.

II.

Not alter it ?—Ah, say not so ;—indeed
  We are not slaves of that disastrous creed
That is no creed, but is fatality,
  'Tis ours to alter all we feel and see,
And as we joy or grieve
  To make the world of things replying seem
Alive with sympathy, which poets deem
  They know, who but believe.

Not alter it ?—The splendours of the sky
  Are to the seeing or unseeing eye
Or empty shows or meaning mysteries.
  Lightning, and stars, and suns that set or rise,
The winter, and the night,
  Rain-laden clouds, and sunlit summer days
To some are nothing : scanned by wisdom's gaze
  Are holiest delight.

Not alter it ?—The labour and the pain,
  The streaming eyes and bended knees are vain ?
Not so : no sickness is, but sympathy
  May be a healing balm; no agony
That love may not divide.
  Evil must be, but by so much the less
Will there be evil as we dare confess
  The good alone our pride.

Not alter it?—There is no right or wrong,
No guide, no duty: wisdom toiling long
Hath found no clue, nor any certitude
The cultured citadel, the village rude,
Keep each a different rule.
The various climes a varied measure hold:
And each who sinning trembles or is bold
Is his own conscience, fool.

A lie!—alas, indeed it seems a lie.
Who knoweth?—Yet this much is certainty
That all is wrong for each, which he believes
To be offence,—be there a God who grieves,
Or be sin only pain:
And this,—that men with wider knowledge rise
And lift the wider age which multiplies
The deeds they should disdain.

Not alter it?—No eye can penetrate
That deepest dark,—whatever is, is fate,
Foreknown or unforeknown, and circumstance
Whirls every puppet in unmeaning dance
Till death shall end the jar
Of faith and fears. If free we may not be,
At least this is one more necessity,—
To act like men who are.

Not alter it?—'Tis oft we guess amiss,
And ne'er hath reason taught us more than this,—
(Did he not say it whom they crucified?)
"Seek ye, and ye shall find." Then seek! Abide
The issue! Nay, the word,
Be sure, was idle: yet 'twas something when
He spake in Israel that there tingled then
The ears of them that heard.

Not alter it?—nay, wherefore should we so?
God is, or is not: either way we know
That if he is, he loves his children well,
That if he is not, neither earth nor hell
Hath terrors. Death is all.
We will not fear the everlasting sleep,
Wherein we dream not, no, nor toil nor weep,
But slumber as we fall.

Not alter it?—then is the grave the end,
  Indeed the end, and all our hopes portend
Is sad delusion which the falling rod
  Shatters: beyond is neither life nor God,
Nor evermore shall rise
  The clay we consecrate with sobs and tears,
A lifeless trust to unreviving years
  Is every friend who dies.

Not alter it?—Ah! weep not so:—not such
  Is truth—not all the truth. 'Tis surely much
To work and love, and feeling Nature's power
  Work in us, store against the dying hour
Undying memory
  Of what we did and were,—our own reward
And others' heritage, when long the sward
  Has withered where we lie.

And if—Ah God!—and if there be for men
  Beyond and after any life again,
Then 'tis not vain to brood upon our fate.
  Ask,—ask! the answer comes tho' coming late.
Perchance when life shall cease,
  Then most for those who doubting strove to know
At all cost truth shall dawn—we know not how—
  Knowledge and love and peace

A. H. C.

CRITICAL NOTICES.

1. VERNACULAR LITERATURE.

Managanita.—An elementary treatise on Mental Arithmetic; comprising Suvankara's poems, together with many original rules. By Kirtti Chandra Chaudhuri, Assistant Engineer. CalcuttaPress. B. S. 1280.

We are glad to see that the educated sons of this country are beginning to take an interest in the dissemination of knowledge among our boys and girls. English education has not yet become so diffused as to be accessible to all; and it is therefore the duty of those who derive intellectual life and light from it, to share the blessings with their less fortunate brethren by communicating to them the substance of Western literature and science through the vernacular. We may fairly expect also that our national literature will at the same time receive valuable improvements and additions from their hands. That science, that art, and that philosophy which India proudly boasts to be peculiarly her own, should be cultivated by them with the same care and ardour as that with which they cultivate those of Europe. The noblest function of an Indian literary man of the nineteenth century, is to be looked for in the communication of his knowledge to others. It will be only viewing the dark side, if the objects of education be confined to the selfish pleasures consequent upon a thorough understanding of natural phenomena or a masterly perception of poetic beauties, and to pecuniary gains and advantages. In the eye of morality a highly educated man is mainly valuable, because his education is instrumental to the education of others. In order, therefore, that the learning of our learned men might be estimated at its proper and real worth, they should not sleep in the bed of indolence, but set themselves to the two-fold task of introducing to Western minds the tenets of Eastern philosophy; and to the minds of their brethren at home, the benign influences of Western civilization, and the literature and philosophy of the East. It is gratifying to observe that these two influences have been of late years taking root in the minds of the educated natives. Researches are being made, recondite facts are being brought to light, diverse translations are being sent out from the press, sundry original works are being published; and a cheerful prospect is thus held out of future rapid progress under the new impulse. And the book under review is an instance bearing testimony to this spirit.

This work adds much to the debt of gratitude which Bábu Kirttí Chandra, already author of two very valuable publications'

is earning from the public. The book is intended to be used as a sequel to the author's *Ganita Sangraha*, an arithmetic in Bengáli. In the *Managanita* he endeavours to embody almost all the arithmetical formulea of *Suvankara*. Every native accountant knows that the chief merit of *Suvankara's* rules consists in the facility with which they enable the principles of arithmetic to be applied to transactions of every day life. These rules are very ingeniously framed in a light and pleasing metre, which renders them easy to be remembered by little children. It is to be regretted that the custom of putting boys in vernacular schools in which they are brought up on a completely new method, is so firmly established among native gentlemen residing in the metropolis, that—*Suvankara* has almost receded from the reach of their boys, and loiters only in the poor *pátsálas* of remote villages and lives in the mouths of hucksters. It must be admitted that a thorough knowledge of arithmetic implies at the least a fair acquaintance with the canons of mental arithmetic. The case, however, as it stands now, is that the majority of our boys and girls here practise themselves on slates and paper, and have altogether neglected mental arithmetic. It is, therefore, highly to be desired that our boys practise themselves simultaneously in slate work and in mental arithmetic. The book before us supplies the best means for the attainment of the *desideratum*. It contain an excellent synopsis of *Suvankara's* arithmetic. All the rules that are taught in the *pátsálas* of the highest rank and by the best *Gurus* of our country, are to be found in this treatise methodically arranged. We have not come across any other book of the kind though we can not say for certain that it is the first. But whatever place it may occupy in order of time, it certainly in itself leaves nothing to be desired.

The excellence of Suvankara's system may be clearly perceived by a reference to the following quotations taken at random from the *Managanita* :—

Question:—"যে জমির ১ বিঘার খাজনা টা ৪৷৷৶১৭৷৷০ তা৷ বি ৯৷৷৪৷৶ এর খাজনা কত?"

Solution :—Suvankara's rule is—

"জমি বিঘা যত তঙ্কা, করিবে বলন।
"তঙ্কা প্রতি ষোল গণ্ডা, কাঠার ধরণ ॥
"যত আনা তত গণ্ড, পাই প্রতি বট।
"গণ্ডা প্রতি ষোল তিল, ঘুচাও কপট ॥
"কড়া প্রতি চারি তিল, শুভঙ্কর ভণেহ।
"জমাবন্দী কর শিশু, আনন্দিত মনে" ॥

Now, see the application.

টা ৪৷৷৶১৭৷৷০= ১ বিঘার খাজনা,

∴ ৶৪ + ৴১১ + ৴৷৷০ + ৴১/১২ + ৮ = ৶১৫৸৶ = ১ কাঠার খাজনা;

∴ ১৶১৯।৶ = ৫ কাঠার খাজনা;

and ৴১৮৸১০ = ১ পুয়ার খাজনা;

and ৴৪৷৶১৭৷৷= ১ ছটাকের খাজনা।

wherefore ৯৷৷৪।৶ এর খাজনা =৩৬১ + ৬৶০ + ৷৶১৩ + ৴৪৷৷০ + ২১ + ৷০ + /১৮৸ + ৸০ + ৶০ + ৴৩৷৷০ + /৪ + ৴৪৶০ + ৴৷/২ + ৩ = টাকা ৪৬/৮৶৫.

Without any apology we proceed to annex an English translation of the above process, retaining, of course, the technicalities peculiar to our tables of measures and coins. In order to understand the translation in all its parts, the following tables must always be kept before the eye :—

Money Table.

16 Ghuns	make	...	1 Til	—	Til
20 Tils	„	...	1 Káka	—	Ká.
4 Kákas	„	...	1 Karhá	..	Karh.
4 Karhás	„	...	1 Gandá	...	Gan.
4 pice or 20 Gandás	„	...	1 A'ná	...	Ana.
16 A'nás	„	...	1 Rupee	..	Re.

Land Measure.

4 Chatákas	make	...	1 Puyá	...	Pu.
4 Puyás	„	...	1 Káthá.	...	Káth.
20 Káthás	„	...	1 Bighá	...	Bigh.

Question.—If one bighá of land be rented at 4 Rs., 11 ánás, 17 gandás, 2 karhás; what will be the rent for 9 bigh., 14 kath., 1 pu. 2 chatk. of land of the same quality?

Rule.—If the rent for 1 bigh. be 1 Re., 1 ana., 1 pi., 1 gan., or 1 karhá, the rent of 1 káthá will be 16 gan., 1 gan., 1 karh., 16 til. or 4 til. respectively.

Solution.—

∴ By the question

Rs. 4, 11 anas, 11 gan., 2 karhá, = rent for 1 bigh., the rent for 1 káth. = 16 × 4 gan. or 64 gan. or 3 ana, 4 gan. +11 gan. +16×17 tils or 272 tils or 3 karh., 1 kák., 12 tils +8 tils = 3 ana, 15 gan., 3 karh., 2 kák.

∴ rent for 5 kath.=1 Re., 2 anas, 19 gan., 1 karh., 2 kák., and that for 1 pu.=18 gan., 3 karh,, 3 kák., 10 til, and that for1 chatk.,=4 gan., 2 karh., 3 ká. 17½ til (½til=8 ghun). ∴ rent for 9 bigh., 14 káth., 1 pu., 2 chatk. of land.

	Re.	Ana.	Gan.	Karh.	Ká.	Til.
=	36	0	0	0	0	0
+	6	3	0	0	0	0
+	0	7	13	0	0	0
+	2	0	4	2	0	0
+	0	4	0	0	0	0
+	0	1	18	3	0	0
+	0	12	0	0	0	0
+	0	3	3	2	0	0
+	0	1	8	0	2	5
+	0	0	0	1	1	0
=	46	1	8	0	3	5 Ans.

The above instance is sufficient to convince those of our readers who understand the workings, of the truth that calculations based upon *Suvankara's* system are more concise than those worked out with the aid of Colenso or Hind; and that his system of mental arithmetic, viewed in the light in which mental arithmetic is useful to men, is decidedly superior to that of the English.

Besides the rules or *Aryajas* as they are styled, of Suvankara, our author has, to make his work complete in itself, occasionally borrowed rules from treatises on mental arithmetic, by English authors. Formulæ such as $(a+b)(a-b)=a^2-b^2$ $s=\frac{n}{2}\left\{2a+(n-1)b\right\}$, &c., greatly increase the practical utility of the book.

We are so fully convinced of the value and importance of this excellent work, that we have no hesitation in recommending its adoption in the higher classes of all vernacular schools.

Kamale Káminí Nátaka. By Dinabandhu Mitra. Calcutta: 1280 B.S.

JUST as we received this drama, we were overtaken by the sad news of the death of its talented author. A few general remarks, therefore, on his career and the character of his writings will not be deemed out of place as an introduction to this notice of his last work. Babu Dinabandhu Mitra has, by his multifarious literary achievements, acquired a celebrity among his educated countrymen that cycles of ages will not succeed in destroying. During a long career, he was engaged in the noble

undertaking of supplying a real deficiency in the literature of his country ; and the want of a good regular drama in the Bengali language was thus in some measure supplied, greatly to his credit. We are not as yet in a position to determine the exact amount of service his rich contributions to the national literature did in the grand formation of the Bengali language, which has begun to spring up into a new and independent existence, since the publication of the *Exile of Sítá* and the *Story of Sakuntalá* by Pandit Iswara Chandra Vidyáságara ; but we can safely say that if any influences have been generated at all by the works of any writers other than those of the Ságara, they have been by the productions of the dramatist Dinabandhu and the novelist Bankima Chandra. It is no exaggeration to say that the works of these two master-spirits form the standard, whereto all dramas and novels, that issue from the native press, are referred before their fates are finally decided at the tribunal of criticism. To the great misfortune of Bengal and her vernacular, one of these spirits has left her for ever ; leaving behind him the Kamale Káminí as the last stroke, though not the most successful one, of his mighty genius.

The drama of Kamale Kaminí is evidently not intended for the stage. It abounds with those extraordinary episodes which moderns look upon as "breaks" of theatrical illusion. It is indeed too shocking to the feelings of the audience, to see introduced a band of soldiers, armed with shields and swords, riding in pursuit of another band and leveling their deadly weapons at the retreaters whose shrieks and death-groans rend the skies. Such scenes are not tolerated on the stage for many reasons ; of which one, by far the most important, is that it is extremely difficult to restore the feelings when once so shocked, to their normal state of sympathy with the main event represented. Again, consider the difficulty of constructing a modern stage, in which a field of battle may be exhibited, with encampments on both sides, and buildings from the top of which ladies are to shower wreaths made of *lotus* flowers on the bravest of the brave, and choose husbands among the heroes whose exploits they have marked from their post of vantage : and it will be clear that the Kamale Káminí, as it stands, cannot easily be adapted to modern scenic requirements.

The name which the author has chosen is likely to mislead the readers with the idea that the main incident on which the plot of the piece turns, is a mere ramification of the antiquated mythology about the adventures of the youthful merchant named *Srímanta* ; but it will be seen that the author has developed a new plot, wholly unconnected with those adventures. In few words the plot may be summed up thus :—In a war which happened between the two potent Kings of *Manipur* and Burmah (*Bramhadesa*), for the possession of Cachar, *Ranakalyání*,

daughter to the latter Rájá, fell in love with *Sikshandiváhan*, Assistant-Commander-in-Chief in the army of *Manipur*. The latter, too, was enamoured of her. The too lovers, after enduring for a short time the bitter pains of separation, joined their hands in the marriage-bond ; and the alliance was consummated by a reconciliation between the two Rájás, that culminated in the accession of *Sikshandiváhan* to the disputed throne of Cachar. The plot is, it appears to us, entirely dry, and wanting in what is called, in the technical language of critics, dramatic interest. A close examination of the characters reveals to us nothing of complexity every thing is nearly the same ; what diversity exists, exists only in semblance. If there be any interest at all, it must be drawn from the circumstance of the fiery *Sikshandiváhan* being conquered by the charms of *Ranakalyání*. The day before he saw the princess, he had been a genuine warrior, advocating inveterate hostility and scouting all idea of peace ; vociferously adjuring the court to leave every thing to the decision of arms, and solemnly promising, sword in hand, to take the head of the antagonist king. The day after he had seen the princess, he appears to have felt no delicacy about advising his sovereign to consent to a perpetual cessation from war. To make *Ranakalyání* a worthy wife of this worthy Knight of chivalry, she is painted in exactly corresponding colours. One day she appears to be very fond of war, and even wishes to lead a female regiment against her father's foes ; the next day she is softened, and recommends peace. Another noticeable and, to some extent, mysteriously interesting, feature in the circumstances of *Sikshandiváhan* is his ignorance of his own connexion with the blood-royal of *Manipur*. The Manipur Rájá having two wives, and *Sikshandiváhan* having been born to the elder Queen, he fell a victim to the jealousy of the inhuman younger wife ; who caused him, while an infant, to be stolen from the lap of the mother shortly after his birth, by a nurse who was induced to commit this iniquity by the spirit of Mammon. Very ingeniously our author has worked up this part of the plot. Deprived of a mother's care, the infant was brought up by a woman named *Tripurá*, who chanced to find him on the seashore. As he grew up, he was placed under the tutelage of *Samaraketu*, who commanded the *Manípur* forces ; and he showed such early symptoms of heroism that he soon rose in his master's favour, and secured for himself the honourable post of an Assistant Commander-in-Chif in the Manipur army. The chief advantage which is derived to the plot from *Sikshandiváhan's* connexion with the royal family, consists only in the fact that the ultimate marriage is thus made to take place between parties of equal importance ; and that the bride thus loses no rank by the union. But whatever amount of interest might be perceived in

all these points, and whatever beauty they might add to the play, their effects are disagreeably marred by the introduction of the *Ráshalíla* affairs, seemingly with a view to hasten the execution of the plot. If it were in accordance with nature that a love-stricken lady of rank, for instance a princess, might properly risk herself in disguise amongst her enemies in order to please her eyes with a sight of her lover, romances would cease to be any longer romantic, and would be perfectly natural. Again, how far this love exploit is natural, and how far it tallies with the natural coyness of women, let lovers and females judge. We think that the introduction of this scene is abrupt, and that its existence is not justifiable.

We should do positive injustice to the author if we made no separate mention of the characters of *Makaraketana*, son of the king of *Manipur* by his younger wife, *Gándhari*, and his mother. The mother and the son follow widely divergent standards of morality, the straightforwardness and the moral integrity of the son, are strongly contrasted with the crooked heart and winding policy of the mother. *Makaraketana*, who was aware of his mother's sin, and suffered much from the stings of conscience, could not forbear from giving vent to his feelings of hatred towards her, when he burst out "পাপিয়সীর গর্ভে পাপাত্মার জন্ম হবে না তো কার হবে" And this notwithstanding the fact that the deep-laid policy of the mother was calculated to redound largely to his own interest. This victory over selfish motives is depicted after the model of *Válmiki*, who represents the half-brother of *Ráma*, reviling the conduct of and ready to kill his mother, *Kaikeyí*, for her foul attempts to place the crown on the brow of her own son, to the exclusion of Ráma, son of Kausalyá. The subsequent repentance of the wicked mother is very admirably described. Her phrensy and illness illustrate the ravings of a wicked heart, and show how the consciousness of crime destroys all peace of mind. We have, however, one word to say about the character of the son. What advantage the author could see in consigning him temporarily to the care and love of a harlot, and giving him these dirty clothes, we have not, we confess, the acumen to perceive. If it be simply for the purpose of awakening the mother to a thorough sense of her guilt, the author evinces no great dramatic skill in thus holding up the depravity of Makaraketana's morals. He could easily have attained his end by some means other than this.

We have now touched upon almost all the leading features of the book. Two words more, and we have done. Bakkeswara is our king's fool in the *Kamale Káminí*. The character of the buffoon has been very wittily drawn, but the witticism has no pretensions to originality. Any one acquainted with the *Sakuntalá*

of *Kálidása* must see that the *Bakkeswara* is formed after the *Bidusaka* of the classic poet. It cannot be denied that the author, fully sensible of the stereotyped buffoonery in dramas of this country, has in part endeavoured to cast it into a new frame ; but the contagion is so strong that, in spite of his attempts, he has succumbed to it. It is to be hoped that modern writers will endeavour to banish that stereotyped buffonery from the dramatic literature of the country, and bring in Falstafts and Fawconbridges in its place. Modern taste recognises no humour in the prevailing system of fooleries ; chronic hunger no longer pleases men ; they must be entertained by different elements. With other improvements, the native *Vandánir* should also be improved.

In the last place, we must not forget to observe that in the book before us, some defects in the manners prevalent in native society are well exposed. Take for instance marriage-customs. A father, if he is fortunate enough to have his son a degree-holder, will not marry the son to the lady of his liking ; but will force him to take to wife one whom he loves not, but whose father can pay an enormous dowry. In proportion as a student passes his examinations successfully, in the same proportion his price is enhanced in the marriage market. "Are ornaments worth 1,000 rupees deserving of my son, who is a B.A?" These words or the like are sometimes heard in the mouths of fathers in this country. We have no adequate conception of the general state of domestic felicity in native homes ; but it can fairly be inferred that that felicity is often not void of alloy under these circumstances. How a home can be free from troubles, when wives are *purchased* and not *selected*, may be a fair question of social ethics. Other customs are also exposed in the play ; but our limits forbid our noticing them.

From what we have said it will be seen that we regard the *Kamale Káminí* as a work of only mediocre quality ; and that, as such, it cannot stand side by side with the other works of Dinabandhu Bábu. We have said nothing about the style of the piece ; and the reason for this silence is that it fully accords with the idea which the public already have of the Bábu's diction.

2. General Literature.

Index to the first Fifty Volumes of the Calcutta Review.

'SELF-PRAISE is no recommendation,' says the old proverb ; and for us to point out to our readers the immense value of the very laborious work before us, may appear to savour somewhat of self-praise. But we cannot allow our *Index* to appear without

offering some tribute of respect and gratitude to the enterprising Press which has in this way very largely increased the usefulness of this *Review*. The work has been one of singular difficulty, and has occupied the attention of the learned and very able editor for some years. We may say without presumption that hardly a subject of interest connected with India has arisen for more than a quarter of a century, that has not been discussed at length in our pages, often from the stand-point of special knowledge—and always, we hope, with honesty and impartiality. The vast stores of really useful information that have thus been accumulated in our back numbers, have hitherto been useless for purposes of references ; for the search for a single fact or statement might often be a task of days or even weeks, and (in India especially) those who want to find out facts rarely have weeks or even days at their disposal. Mr. Furrell has now obviated all this ; and the way in which he has performed his arduous task, will delight the hearts of all those whose researches lie in this direction. The headings are throughout most judiciously selected ; plenty of cross-references are given ; and a Second Part shows all those subjects of interest which, though not discussed at length, are alluded to *en passant*. Mr. Furrell has opened up a new world for students of Indian literature and Indian science.

A Dictionary and Glossary of the Qor-án.—By John Penrice, B.A. London : Messrs. Henry S. King & Co. : 1873. Demy 4to., 166 pp.

WE live in the age of Dictionaries. Twenty years ago when the reviewer was in college, a few special dictionaries to Homer, Ovid, and other Greek and Roman classics were published ; and their usefulness was so great that to buy a special dictionary was for some time looked upon as little short of buying a translation behind the back of the master. Since then most numerous 'helps' have appeared, in the form both of special dictionaries and of carefully edited and well-annotated editions, and a good portion of what we call 'cramming' is the result of superior text books and special lexicographical conveniences. The Oriental Student twenty years ago was much worse off than the classical student. As far as Arabic is concerned, Freytag's great Lexicon Arabico-Latinum was out, and professors and students had only to fill up and to correct. For Persian and Turkish there were far less helps. Of Vuller's works, an uncritical compilation, the first few fasciculi were out ; Meninski and Richardson were the sheet-anchors ; and when beginners took up Rosen's Persian Tales, or the Gulistán, or the Qyrq Vazir, the meanings of the words had in many cases to be given

out by the professors, so that there was a minimum of preparatory study for the lectures. But since that time great efforts have been made in assisting Oriental students. Least has been done for Persian. Neither have the native sources of lexicography been used, nor do we possess a decent Persian Grammar—a rather remarkable circumstance, considering the importance which Persian holds in India. For Arabic and Turkish much more has been done. The Turkish student has at his command a vast number of practical elementary books and fair vocubularies, though a good dictionary of the language is perhaps a desideratum. But for Arabic we have grand works, both in grammar and lexicography. The difficulty of the language itself, and its position as the first among the Shemitic stock, its importance with reference to Muhammadan law and history, rendered the publication of exhaustive dictionaries and grammars necessary. Hence we have even a fair number of special dictionaries. The oldest perhaps is the little known Arabic-Persian Dictionary to the Maqámáti Harírí by Ján 'Alí printed at Calcutta in 1814. For the Qor-án, however, the *manbá* and *makhraj* of Arabic lore, a special dictionary was urgently required, and we hail the appearance of Major J. Penrice's *Sirá ul baqán fí manáyib il-Qorán.*

This dictionary, together with Fleischer's splendid edition of Baizawi, the Calcutta edition of Zamakhshari's Commentary, and Sale's notes and introduction, will enable the student to master the difficulties of the *Qor-án,* and gives him, as correctly stated in the preface, in a succinct form what he would otherwise have to cull at a great sacrifice of time and expense from the works of others. The vocables are arranged according to the roots and the order of the words is generally the same as in Fluegel's Concordance. Difficult verbal forms have been separately registered—a great boon for beginners. The meanings are carefully arranged, and the suitable significations for passages quoted follow the primary meanings of the roots. All passages quoted have the numbers of the *súrats* and the *áyats,* according to Fluegel's Concordance ; but if a second edition should be required the *juz* or *párah* might be given for the benefit of Eastern students. Natives, at least in India, do not like the numbering of the verses; they still prefer, extraordinary as it might appear, the well-known *Nujumúl Furqán* or the assistance of a Háfiz to Fluegel's Concordance. It is only quite recently that some English educated natives have learned to look with less suspicion on Sale's translation.

Instead of the references to DeSacy's Grammar, we would have liked to see references to Wright's Arabic Grammar, which book is sure to be in the hands of all students, whilst DeSacy's work is intended for the scholar or advanced student.

We trust that the compiler will extend his labours to other Arabic standard works.

The manner in which the book is got up is excellent. Messrs. H. S. King & Co., London, have spared no expense to make the book worthy of the firm's good name. The Arabic types of Austin and Sons are clear, and the vowel points are sharp. The oriental title after the English title page might be improved: the letters are scarcely in harmony with the rules of the *Nawáir, maddát,* and *kallahs* of Oriental penmanship. But this is perhaps a matter scarcely worth mentioning. Altogether the book is one of the best got up oriental publications that we have.